THE WOW

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then-now.org

THEN/NOW

A public art project
with and for the
Forth and Clyde Canal

DISPLACEMENT

Seven cast-iron ingots commemorating a barge-pulling event in July 2015, set into the stonework that edges the canal bank.

The seven iron ingots are 'permanent' markers of a barge-pulling event held on the canal in July 2015. In the event, six engines – a heavy horse, six cyclists and bicycles, a team of kayakers, fifteen children, a group of adults, and one labrador dog – each pulled Scottish Canals' working barge, Rockvilla, along the stretch of water where the ingots are now installed. The barge was loaded with logs, a cargo frequently transported in the past along that section of the canal to and from the nearby Firhill timber basin. Each engine was given two minutes to pull the barge and the distances travelled were measured and recorded. The ingots are set into the canal bank, marking the points that the six engines reached in their two-minute time trials. These six ingots each bear the name of an engine (for instance, '6 x cyclists & bicycles' or '8 x adult humans') and the distance it travelled, cast in raised lettering. The seventh ingot marks the start of the barge pull.

The ingots were cast at a public event in August 2015. They were made using a portable furnace erected on the site of the former Victoria Foundry, one of many small and medium-scale manufacturing sites that populated the canal banks in the nineteenth century. The portable iron furnace was built and operated by a group of artists from Glasgow Sculpture Studios, one of the organisations located at The Whisky Bond, a former warehouse beside the canal that now accommodates a community of makers and designers.

Spectators at the iron pour witnessed, close-up, a centuries-old process where reclaimed scrap iron was heated to over 1500 degrees centigrade, and the molten iron poured into hand-crafted moulds to create the seven ingots.

The ingots were installed in November 2015.

RESERVOIR

Nine granite blocks, each with a miniature reservoir carved into its upper face.

The *Reservoir* carvings make a connection between the canal, which is often seen as an inert stretch of water – a big ditch – and the wider network of reservoirs and water channels that feed it.

Some of the carvings are based on Scottish Canals' hydrographic survey drawings of reservoirs that currently supply the canal with water: Birkenburn Loch, Black Loch, Lilly Loch, Townhead Reservoir and Hillend Reservoir. Four of the smaller reservoirs (Bishop Loch, Johnston Loch, Lochend Loch and Woodend Loch) have no hydrographic data and so additional surveys of these much smaller and shallower lochs were commissioned from the School of Geographical and Earth Sciences at the University of Glasgow, and new drawings made.

Artist and stone sculptor, David F. Wilson, carved the reservoirs.

THEN/NOW

Lettering carved into opposite walls of the canal, marking its past and present water levels.

The Forth and Clyde Canal was closed as a navigable waterway in 1963. At this time, the average water level in the canal was lowered by around forty centimetres to make the canal easier and less costly to maintain. The words 'THEN' and 'NOW', carved opposite one another on facing canal walls, mark these two water levels and different phases in the canal's ongoing evolution.

The letters are inscribed upside down and in reverse, so that they can only be read when reflected in the water. Wind rippling the canal's surface or rain spotting the water blurs the reflections, meaning that the words are only clearly legible on still, dry days. Small fluctuations in the daily water level also mean that the word 'NOW', carved on the mean water line, is sometimes partly covered, taking on the appearance of an unidentifiable hieroglyphic.

The words were carved by artist and stone sculptor, David F. Wilson.

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THEN/NOW: PUBLIC ART, TIME AND HERITAGE

Minty Donald

10.20 am, 10 June 2020. The 'now' of writing this sentence. It is a 'now' that I had not imagined more than five years ago when Neil McGuire, Nick Millar and I were commissioned to make the public art project titled *THEN/NOW*. It is not even the 'now' I anticipated when I began to write the introduction to this book, which is part of that project, at the start of March 2020. This preface acknowledges a 'now' where two very recent, and ongoing, events bring a renewed and sharpened focus to the thinking about public art, time, and heritage that scaffolds *THEN/NOW*.

In the 'now' of early June 2020, Scotland, like other countries across the world, is emerging tentatively from conditions imposed to mitigate the impact of the COVID-19 pandemic. For around three months, public life has been radically curtailed through government directives intended to inhibit the spread of a virus. Human behaviour in public places has changed, perhaps never to return to pre-COVID-19 'normality'. In other words, current attitudes towards 'public' are shaped by an other-than-human entity.

In this 'now', the murder in Minneapolis of George Floyd, a black man, by a white US policeman has sparked global protests against racism and colonialism. The protests have seen public statues and place names commemorating figures and events integral to colonialism and racial injustice removed or relabelled. What to do with such remaining monuments, and the relationship between symbols of oppression and continuing inequality, is the subject of ongoing, impassioned debate.

These two events illuminate two ideas that are pivotal to *THEN/NOW*. First, that 'public' is not a solely human category. 'Public' is also constituted by agencies that are other-than-human, such as viruses. And second, that 'the past' is never over-and-done-with; it cannot be compartmentalised, ignored or consigned to 'history'. Prior events, and their associated symbols, continue to irrupt, to recycle, and to be reinterpreted. The two events cause me to take stock of my role as a public artist. They prompt me to think seriously about my responsibility for the kinds of symbols, objects or gestures I make in and with human and other-than-human publics. And to ask, how do I respond to or intervene in the ongoing reinterpretation of such objects or gestures?

This book of essays, conversations, descriptions, comments, and images accompanies three linked, 'permanent' artworks (titled *THEN/NOW, Displacement* and *Reservoir*) installed on and around the banks of the Forth and Clyde Canal near to Applecross Street Basin, Glasgow. Together, the book and the artworks are the tangible traces of the project *THEN/NOW*. (*THEN/NOW* is the title both for the whole project and for one of the three 'permanent' artworks). Material in the book dates from different moments throughout the project. It includes witnesses' and participants' first-hand accounts of live events in 2015, reflections on the legacy of the artworks, and my response to the project in the context of global conditions in June 2020. The publication of this book, more than five years after the 'permanent' artworks were installed, marks an interjection in a project with multiple, emergent 'thens' and 'nows'.

INTRODUCTION

We do have a future and a past, but the future takes the form of a circle expanding in all directions, and the past is not surpassed but revisited, repeated, surrounded, protected, recombined, reinterpreted and reshuffled.

BRUNO LATOUR[1]

In *We Have Never Been Modern*, philosopher and social anthropologist Bruno Latour proposes that time is not forward-moving but looping, in contrast to the linear temporal model that characterises modernity. Latour debunks the modern conception of time as an 'irreversible arrow',[2] where past, present and future succeed one another along an inevitable trajectory. This modern view of temporality is a human construct, he argues, which supports ideas of progress and expansionism and in which other-than-human temporalities are dismissed or take their place in the narrative of inexorable human advancement. Bruno Latour's looping, non-linear, and more-than-human temporality underpins *THEN/NOW*. The temporalities of *THEN/NOW* are jerky, ambiguous, and overlapping. Does the virgule (/) symbol separating 'THEN' and 'NOW' refer to 'or', 'with', 'and' or 'between'? Or to all four? In *THEN/NOW* modern human-centric and progressive narratives of time, such as the narrative of continuous economic growth fostered in eighteenth-century Scotland (the context for the construction of the Forth and Clyde Canal) or the current 'forward looking, regeneration aspirations'[3] of the project's commissioners, Scottish Canals, are unsettled and extended.

In *THEN/NOW*, beginnings and endings are provisional and contingent. When, for instance, did the project start? In September 2014, with a research trip where Nick and I accompanied 'canal man' Tam Reston on his daily work routine? (This daily routine comprised a round-trip of over one hundred miles across central Scotland to attend to the network of feeder channels and reservoirs that supply water to the canal.)

Or did the project begin in March 2014 when I noticed a call for proposals for a 'permanent' public artwork for the canal?[4] Or maybe it started over twenty years earlier, in 1993, when Nick and I brought our newly-built canal barge, Peccadillo, to berth at Applecross Street Basin on the Forth and Clyde Canal? (We lived on Peccadillo, at Applecross Street Basin, for four years). Perhaps it began 228 years ago, in 1790, when the Forth and Clyde Canal was first opened? Or do timescales extend to the geological, with the project's origins dating to the formation of the granite that we used for one of the artworks: around 400 million years ago?[5] And when does the project, commissioned as a 'permanent' artwork, end? The duration of *THEN/NOW* is slippery, erratic, and expansive.

Such expansive, and beyond human, time frames rarely figure in public art commissioning, practice, and debate. While the temporality of public art has been the subject of considerable critical attention for over three decades, debates have framed temporality in human terms; temporality viewed through the lens of modernity, as Bruno Latour would have it.[6] Much of the critical discussion has focussed on determining categories of 'permanent' and 'temporary' public art, and drawing a distinction and opposition between those categories. 'Permanent' public art, with its lineage in sculptural, monumental work, frequently commemorating people or events deemed worthy of honouring by their commissioners, has been widely vilified. Criticism hinges on the inability of 'permanent' work to engage with multiple, changing, societal structures and values, and for reinforcing exclusive, authoritative, outmoded and, in some instances, oppressive ideologies. The reaction to public statues and place names associated with racism and colonialism that has been a prominent feature of protests in June 2020 is

an example of the potency and divisiveness of 'permanent' public monuments. In the case of non-figurative work with less overtly political imagery, the typically top-down commissioning processes of permanent public art, where artworks with no connection to or buy-in from local communities are imposed on a neighbourhood in perpetuity (so-called 'plonk' or 'plop' art), have also been subject to widespread condemnation.[7] These critiques are often linked to issues of place, power and identity. Public art commissioning has been associated with, and criticised for its complicity in, place-making agendas. The *THEN/NOW* commission brief, which invites artists to make work that reflects the 'forward-looking regeneration aspirations' of Scottish Canals, is perhaps at the more benign end of a spectrum of approaches where public art is harnessed to place-making. Place-making or place-branding is often attached to gentrification or the development of tourism in an area, which frequently excludes and disadvantages less affluent local residents. The essay in this book by public artist, Matt Baker, 'For, With, By or In: Bringing the Power Back to Here', draws on his extensive experience to discuss the relationship between public art and spatial power relations.

A turn to the 'temporary' has marked the response of public artists and curators to the seeming failures or limitations of 'permanent' work. The past three decades have witnessed the proliferation and valorisation of a spectrum of 'temporary' artworks that include Suzanne Lacy's 'new genre' public art,[8] event-based art curated and promoted by Claire Doherty and Paul O'Neill,[9] and diverse performance and 'social' art practices discussed by scholars Claire Bishop and Shannon Jackson.[10] However, while champions of temporary public art argue for its potential to reflect, unsettle, and even

affect the 'now' of its social-spatial-temporal context, the positive attributes of temporary work remain tempered by anxiety about duration, in terms of legacy or lasting impact. Artist David Beech proposes that the fixation with duration in temporary, social or public art is itself a form of monumentality, transferred from the sculptural object to the 'quality of the temporal experience of community arts projects'.[11] Beech develops his critique:

> If we are going to think politically about art, site, publics and time, we need to put the ideology of duration behind us. We have to stop keeping tabs on our own use of time. Let's think instead about delay, interruption, stages, flows, of instantaneous performances and lingering documents, of temporary objects and permanent mementos, of repetition, echo and seriality and break with this binary opposition altogether.
> DAVID BEECH[12]

THEN/NOW takes up the call to dismantle the categories 'permanent' and 'temporary', dissolving distinctions and contention between them. *THEN/NOW* encompasses a constellation of practices and activities, which could individually be labelled as 'temporary' events or performances and 'permanent' sculptural artworks. However, in *THEN/NOW* 'sculpture' and 'performance', 'temporary' and 'permanent' are entangled. The work *Displacement*, for instance, comprises a participatory barge-pulling activity, taking place over a few hours and witnessed by an audience; a later event where iron was founded and cast in moulds as a public performance; and the resulting set of cast-iron ingots installed in the canal bank, where they are likely to remain *in situ* for at least as long as the canal endures.

These 'permanent' iron ingots are inscribed with oblique references to the barge-pulling event: distance measurements and the names of the six different engines that pulled the barge (fifteen children, ten adult humans, one heavy horse, one labrador dog, seven kayakers and kayaks, and six cyclists and bicycles). While the cast-iron ingots might be considered as documentation of past activities (the barge pull and iron founding), for visitors to the canal who did not witness those events, they are obscure, and perhaps tantalising, prompts for multiple interpretations or actions. On a walk by the canal, I overheard a man speculating to his daughter that the inscription 'fifteen children' referred to the number of children drowned in the canal. Another eavesdropped interaction was less macabre: a group of walkers sang the captions out loud to the tune of the carol, *The Twelve Days of Christmas*. The inscribed ingots are both documents of an event that has taken place and prompts, or 'calls', for future responses.

The idea of the artwork or image as a 'call' inviting future responses, as well as a record of past actions, is developed by performance scholar, Rebecca Schneider. In reference to Paleolithic handprints on cave walls in France, she says:

> Rather than approaching an image simply as representation, trace, documentation, art, or evidence of the bygone [...] might we think of it as resonance, reverberation, or ongoing call?'
> REBECCA SCHNEIDER[13]

This concept of the image as an 'ongoing call' offers one approach to re-thinking distinctions between 'temporary' performance and 'permanent' artwork. Schneider conceives the handprint as a 'gesture' or 'hail', which might be met

by a corresponding gesture at any time, thus entering into an ongoing performance of call and response acted out intermittently over millennia. The gesture of the prehistoric hand is not consigned to the past but continues to participate in this ongoing performance. Time is not linear nor forward-moving, but looping. Further, the 'calls' or 'gestures' described by Schneider are not performed exclusively by or to humans, or even other animate beings. They are 'extended out beyond a body, a gesture is carried perhaps by air, perhaps by stone'.[14]

The more-than-human gesturing that Rebecca Schneider describes resonates with another of the three artworks: *THEN/NOW*. In this work, the words 'THEN' and 'NOW' are carved into the two facing walls of the canal. The words are carved upside down and in reverse, meaning that they are only clearly legible – to humans – when reflected in still water. Their location on opposite canal walls means that it is impossible to see both words simultaneously, either from the banks or from the water. The carved words are markers or documents of several temporal moments: the two days in November 2015 when sculptor David F. Wilson carved the letters, wearing a drysuit as he stood chest-high in the bitterly cold canal; the moment when the water in the canal was lowered to the level of the base of the letter 'NOW' following the canal's closure as a navigable waterway in 1963; a day in late May 2020 during the COVID-19 pandemic when the 'NOW' lettering was partly submerged by raised water levels. But the carvings are also more-than-human gestures: hail and counter-hail ricocheting back and forth between the facing canal walls, or call and response between carved stone letter and mirroring water surface, or intermittent conversation between human visitors, stone and water – sporadic, looping, more-than-human performances of indefinite duration.

The temporalities at play in *THEN/NOW* explode the implication that the 'public' of public art is an exclusively human public. *THEN/NOW* enfolds multiple human and other-than-human entities who have been part of, and who continue to pass in and out of, the unstable collective that constitutes the 'public' of the canal. For instance, one of the artworks, *Reservoir*, comprises eight granite blocks dispersed around Applecross Street Basin. Each block has an indentation carved into its upper face, representing in miniature one of the network of reservoirs that supply or supplied water to the canal. Alongside the innumerable humans who interact with this and the other artworks, the 'public' for *Reservoir* includes dogs who are exercised along the canal towpaths and who use the carved indentations as drinking bowls; birds who bathe in the same water bowls; and microscopic lifeforms, like caddis flies and blood worms (the larvae of the chironomid or dancing midge) who take up residence in rock pools formed in the stone indentations.

The idea of the public or social as an always changing 'collective' of human and other-than-human 'entities' is pivotal to Bruno Latour's critique of modernity. He argues that a premodern conception of the 'social' or 'public' would not recognise distinctions between human and non-human, natural or cultural. The binaries of human/non-human and nature/culture are an invention of 'the moderns', and are tied to a belief in the superiority and exceptionalism of humans.[15] These ideas underpin the contention that *THEN/NOW* is public art for a more-than-human public. They have also been taken up in recent heritage studies and practices. Archaeologist and heritage scholar Rodney Harrison argues that formulations of heritage need to extend beyond their typically human focus and to recognise the agency of other-than-humans. Influenced by 'alternative models

of heritage from Indigenous and non-Western contexts' he conceptualises 'heritage as an emergent property of the *dialogical* relationship between human beings and a range of other human and non-human actors and their environments'.[16] In this expanded rendering, heritage engages with debates about environmental crises and sustainability, challenging the anthropocentricism of dominant heritage discourses. The contested concept of 'heritage' (along with that of 'public art') underpins the commissioning and realisation of *THEN/NOW*. The Forth and Clyde Canal is categorised as a scheduled monument by Historic Environment Scotland and the project was commissioned as part of a heritage interpretation strategy for the canal, supported by the Heritage Lottery Fund.

The heritage interpretation strategies of Scottish Canals reflect, to some extent, shifts in heritage management over the past two decades. This might be summarised as a shift from a focus on the conservation of objects and sites deemed significant and at risk, to a recognition of heritage as an ongoing process. Michael Shanks and Laurajane Smith are among the heritage and archaeology scholars who argue that yoking heritage to the preservation of material things, like buildings or monuments, can support the reification and perpetuation of dominant, monolithic and oppressive ideologies.[17] Smith contends that the 'heritage' buildings, sites and artefacts that are prioritised and preserved tend to be those associated with the powerful or elite, and that those heritage materials are framed in ways that reflect and reinforce their values. Subaltern voices and cultures are excluded, diversity stifled, and change denied. In his essay in this book Scottish Canals' Senior Heritage Advisor Chris O'Connell outlines an approach that welcomes multiple voices, placing stories and memories alongside official accounts of the canals' histories.

There is one aspect of the Forth and Clyde Canal's history that is not currently acknowledged in Scottish Canals' heritage interpretation,[18] however, and one that is pertinent to considerations of the legacy of colonialism and racial injustice in Glasgow, and beyond. It concerns support for and funding of the canal's construction by Glasgow tobacco merchants, such as John Glassford and John Ritchie, who were significant financial backers of the canal in 1767, before construction began.[19] They lobbied for the canal to be routed through Glasgow, providing a more efficient transport link to the east coast of Scotland and helping to open up trade with Europe.[20] The tobacco merchants' wealth was chiefly accrued from tobacco plantations run on slave labour in Virginia and Maryland, America. In one interpretation, the Forth and Clyde Canal is a monument to the transatlantic triangular trade system, and to slavery.

THEN/NOW does not allude directly to this important but largely unrecognised aspect of the canal's history. Nor, though, do the *THEN/NOW* artworks refer explicitly to any other historical data or events deemed significant (from a human perspective). Any references the artworks make to the canal's evolution are oblique and non-specific, with no accompanying explanatory text. For instance, passersby noticing the word 'THEN' carved on the canal wall are not informed that its position marks the water level of the canal before 1963. And people sitting on the granite blocks inscribed with the names 'Bishop', 'Johnston', 'Lochend', and 'Woodend' have no access to the explanation that the names refer to four lochs that were once, but are now no longer, part of the canal's water supply system. (A detailed account of the evolution of this system is provided, however, in geomorphologist Paul Bishop's essay in this book.)

'Heritage interpretation' in the project, *THEN/NOW*, is not intended to inform a human audience about the human histories of the canal. The artworks may provoke imaginative responses and interpretations from human visitors, but heritage in *THEN/NOW* is conceived as more-than-human. As Rodney Harrison puts it:

> heritage is seen as emerging from the relationship between people, objects, places and practices, and that does not distinguish between or prioritise what is 'natural' and what is 'cultural', but is instead concerned with the various ways in which humans and non-humans are linked.
> RODNEY HARRISON[21]

The *THEN/NOW* artworks are, perhaps, more akin to land art, as Carl Lavery observes in his essay in this book, than to the kind of public artworks that refer to historical events, people or traditions. While the 'permanent' works, such as the iron ingots that mark the barge-pulling event, do commemorate activities, they do so in ways that avoid associations with individuals or 'important' moments. (A point made by Wendy Kirkup and Simon Murray in their essay.) The iron ingots also purposely refer to other-than-human participants: the barge-pulling engines are described as human-non-human hybrids: six cyclists and bicycles, not just six cyclists.

Unlike much land art and other forms of monumental art, the *THEN/NOW* permanent artworks are modest in scale and make subtle interventions into the canal-side environment. They might be described, using writer and curator Lucy Lippard's words, as offering 'a microview of land and art, grassroots connections rather than macro

pronouncements'; work which 'absorbs us into its place, even when we understand very little about the messages we are getting'.[22] The discreteness of the *THEN/NOW* permanent artworks, together with their oblique and non-specific representative register, also makes them resistant to depiction and dissemination as arresting images, a feature of large-scale land art identified by Lippard.[23] Given these characteristics, it seems highly unlikely that they, as public artworks, could incite the kind of responses provoked by statues of historical figures; by more obtrusive, non-figurative 'plonk' art; or by some forms of monumental land art.[24]

The events or performances that were a part of the *THEN/NOW* project also diverge from the type of temporary public artworks that Claire Doherty describes as 'a gathering point and catalyst for change'.[25] The temporary elements of *THEN/NOW*, such as the barge pull and iron founding events, clearly affected their human audience and participants, as is evident from witnesses' comments, and from essays in this book by John Main, Karen Lury and Edith Niel. But they were not intended to leave a legacy in the shape of community building, societal transformation, or environmental enhancement. *THEN/NOW* does not aspire to *bring about* change, it *undergoes* change. Hans Haacke's artist's 'manifesto' resonates with this understanding of public art:

> Make something which experiences, reacts to its environment, changes, is nonstable ... Make something sensitive to light and temperature changes, that is subject to air currents and depends in its functioning, on the forces of gravity ... Make something that lives in time.
> HANS HAACKE[26]

In *THEN/NOW*, however, suggesting that the artworks 'live [...] in time' – that they are undergoing change, rather than acting as 'a catalyst for change' – is not to abnegate any agency for the artworks, nor any responsibility on the part of the artists. Returning to Rebecca Schneider's prompt to consider the artwork or image as a gesture or call, *THEN/NOW* might be understood as a suite of gestures that both respond to the call or hail of their location, and invite future human and other-than-human responses or hails. The responses that these gestures might elicit cannot, however, be predicted, nor their consequences always anticipated. And those responses and consequences will be different for different respondents. The rockpools that form in the carved indentations of the *Reservoir* artworks, for instance, make favourable habitats for blood worms, and welcoming bathing bowls for birds, but they are also death traps for many of the creatures who find themselves stranded in the stagnant water.

The consequences of intervening, which the *Reservoir* artworks foreground on a micro scale, are considered on a more macro scale in an edited interview in this book with Scottish Canals' Environment Manager, Olivia Lassière. She reflects on her role in navigating the different needs and demands of the canal's multiple human and other-than-human inhabitants and visitors.

About the Book

The book includes the voices of different parties who are connected with the project and with the Forth and Clyde Canal in different ways, speaking in different tones and registers, and from different perspectives. This multiplicity and disparity is intended to reflect the understanding of place that underpins the project. For Neil, Nick and I, a sense of place, or what we might think of as the identity of a location, is not fixed or singular. It is constantly in process, continually being made and re-made, in relation to all the other places, people, and things with which it is interconnected. Cultural geographer, Doreen Massey, eloquently describes this as 'the event of place':

> What is special about place is not some romance of a pre-given collective identity or of the eternity of the hills. Rather, what is special about place is precisely that throwntogetherness, the unavoidable challenge of negotiating a here-and-now (itself drawing on a history and geography of thens and theres); and a negotiation which must take place within and between both human and nonhuman.
> DOREEN MASSEY[27]

The book is conceived, to borrow another of Massey's definitions of place, as a 'collection' of 'stories-so-far'.[28] It is designed to be portable: easy to tuck into a bag or pocket and to be read at the physical site of the sculptural artworks. But it is equally intended to be read elsewhere: where it might evoke the specific, physical sites of the artworks, or other spaces and places that are actually or imaginatively interconnected with the Forth and Clyde Canal. Nick, Neil and I see the book as a kind of guidebook, but one

that includes diverse interpretations, perspectives, and observations and which invites readers to navigate their own pathways into, through and beyond the project.

Echoing the project's proposition that time is non-linear, the book is designed to allow readers to dip into it at random, rather than following a trajectory from introduction to conclusion. However, the material in the book is assembled according to a certain logic, and so here we offer an overview of its organisational structure. The book opens with a brief description of the three artworks that constitute *THEN/NOW* and this framing essay. Three sections follow: a 'makers' section featuring conversations and commentary from some of the people who helped produce the artworks; an 'audience' section, where witnesses, observers, and in some cases participants, describe and reflect on their experiences; and an 'institutional' section where representatives from the commissioning organisation, Scottish Canals, consider the project from their various perspectives. These categories are fluid: some people and topics could be located in more than one category. Each of the three sections is punctuated by a commissioned essay. Geomorphologist Paul Bishop discusses the Forth and Clyde Canal from a historical and geomorphological perspective; artist Matt Baker relates the project to debates about public art, ownership, power and heritage; and arts scholar Carl Lavery offers personal reflections on the 'permanent' artworks over the course of ten months, while relating these to discussions about sculpture, theatricality, and time, and to other examples of 'permanent', monumental, and land art.

This part of the *THEN/NOW* project, which takes the form of a book, is clearly directed towards a human public. (Although its pages might become home to dust mites, or

spiders, chewed by dogs or wrinkled by rain.) But we hope that the book will speak of and with other-than-human publics to a wide range of readers. We hope it might be used and interpreted in ways that we have not anticipated, like the sculptural artworks themselves. We hope that it will prompt readers, in whatever 'now' they find themselves, to continue to contemplate and question the constantly shifting values, roles, and functions of 'public art'.

MAKERS: REFLECTIONS

Minty Donald, Neil McGuire and Nick Millar
Frank Gilmour
David F. Wilson
Becky Sik and Shireen Taylor

MINTY DONALD, NEIL MCGUIRE, NICK MILLAR

Minty Donald, Neil McGuire and Nick Millar reflect on what led them to respond to a call for 'expressions of interest' to make 'permanent public artwork(s)' for the Forth and Clyde Canal in Glasgow, issued by Scottish Canals, Scottish Waterways Trust[29] and Scottish Sculpture Studios. They reflect on the process of pitching for and being awarded the commission; negotiating the nature and detail of the artworks with the commissioners; how they attempted to critique aspects of the brief, and how they feel about the work now. This conversation among the artist team took place in July and August 2020 and took the form of written responses to a number of questions posed by the team.

The Commission Brief: Artworks to Unlock the Story of Glasgow's Canal[30]

The Scottish Waterways Trust, Glasgow Sculpture Studios and Scottish Canals are working in partnership to deliver public artwork(s) along the Forth and Clyde Canal in Glasgow. This forms part of The Scottish Waterways Unlocking the Story Initiative and the wider regeneration and improvement of the public realm of the canal in Glasgow.

We are now seeking to deliver public artwork(s) in Glasgow that interpret the canal's heritage and reflect our forward looking, regeneration aspirations.

On behalf of the partnership, Glasgow Sculpture Studios invites submissions from artists for a public art commission. Applicants are invited to respond to the chosen geographical site, with an emphasis on unlocking the heritage of the canal, addressing issues of public visibility and knowledge of the existence of the canal, and reflecting the canal's regeneration and its future.

We are seeking permanent artwork(s) and are open to the work being a place for social encounter and exchange of knowledge about the history of the canal as well as a point of location and orientation to provide a context for the canal's heritage and its future.

We require a highly creative and engaging response and expect the highest quality in terms of design and aesthetics of the finished product that also recognises the public context and the requirement for durability and robustness.

The commission is open to artists, sculptors, lighting designers etc. Proposals are invited from artists working either on their own or in collaboration with others.
We will require the shortlisted artists to engage with the local community in developing initial concepts for the work.

Commissioning Process

Selection will be by way of a two-stage open submission competition.

Stage 1

Artists will be initially asked to submit an expression of interest and details of previous work to date.

Stage 2

A maximum of three artists will be shortlisted and invited to submit detailed proposals. A site briefing will be organised for them. A fee of £2,000 will be paid to each artist/artist group to develop their proposals and participate in some engagement work with the local community which will be facilitated by Glasgow Sculpture Studios. The timeline for this will be agreed on selection. At the end of this period the artists will be required to prepare a detailed proposal and present this to the selection panel who will select one artist to deliver the work.

Budget

The total budget for the commission is £76,000. This amount is to be fully inclusive of the artist's fees, fabrication costs, site works, foundation and installation costs, insurance and VAT, and costs of obtaining consents.

Minty(MD), Neil(NMcG) and Nick(NM) in conversation

Q: What attracted you to the brief? How did the project relate to your previous practice or interests? How familiar were you with the context for the work (The Forth and Clyde Canal, and Glasgow)?

MD: There were some strong personal reasons for my interest in the project. Nick and I lived on a boat on the Forth and Clyde Canal at Applecross Street Basin in Glasgow for about four years in the mid-1990s. I really liked that part of Glasgow. It was pretty dodgy in some ways. Quite often there were burned-out cars or buildings being set alight nearby but we were in a secure compound and so it felt safe. I liked being so close to the city but apart from it. British Waterways (they became Scottish Canals in 2012)[31] were really welcoming and made it easy for us to live there. It's great to see how much busier the canal is now, with people and boats. The project was an opportunity to reconnect with the area, and maybe even with some of the people we knew when we lived there.

NM: I was drawn to the call because it was based around the canal and I had a strong connection, as Minty says. I was very familiar with the context both from living on the canal and talking with British Waterways/Scottish Canals staff during the period when the Millennium Link plans were developed.[32] I still regularly walk by the canal so I'm familiar with how it's changing.

NMcG: My route into this was via Minty and Nick. We'd worked together before and were good friends. I joined the project team after some initial research and investigation had taken place, but prior to the proposal being formulated and submitted. This type of work isn't what I do on a day-to-day basis. My day-to-day work is in design (as a graphic designer), and education (teaching in art school and university). But new experiences are always welcome opportunities for learning. I've worked closely with artists, architects and others on collaborative projects, sometimes in the public realm, so those interests and previous experiences fed into this work. I love collaborating, finding that more often than not the outcomes are greater than the sum of their parts. I'm naturally drawn to, and curious about, interdisciplinary activities – ones that fuse different disciplines and different communities of interest. This project had a number of interesting aspects: the physical environment of the canal, its connections, communities and histories. I wasn't very familiar with the context although I had spent time on and around the canal, probably most frequently visiting The Whisky Bond for work-related things. The project itself was the means by which I became more informed about the canal's history.

MD: Nick and I have been making work with and about rivers and other watercourses for over seven years. But we've not worked specifically with a canal before; a waterway that was made from scratch, by humans. This was appealing. From a more conceptual point of view, I'm interested in the relationship between transient events, or performances, and more enduring documents of performance – like scripts or scores. I'd never made work that was intended to be 'permanent' before, and I thought that was a really interesting proposition. I wanted to explore the relationship

between 'temporary' events or performances and 'permanent' sculptural works – to see if we could propose a public art project where the separation of these two categories was questioned.

NM: I am quite wary of public art commissions, so I did have reservations about applying. But I was also intrigued by the idea of creating lasting objects and engaging with my own resistance to that form of work. I'm also interested in how we interpret and understand ideas of heritage. I wondered how we might approach this commission in ways that questioned more conservative ideas of heritage (that is, heritage as the preservation of buildings or objects) and in ways that didn't just add to the mass of human-made stuff. And I thought the commission might allow us to mess around on water and learn some new skills!

Q: Do you consider yourself to be a 'public artist'? What do you think 'public art' is or can do?

NM: While I increasingly think I am a 'public' artist, I have a lot of questions about what is inferred by the use of 'public' to describe art practice or art work. Is there one public or many publics? Do I need to identify a public for my work and if so why? I'm interested in challenging what the term 'public' might refer to. Is it just human publics or are there other publics? Can the water, the fauna and the wind be a public for the events or art objects we produce? Working with these questions, I can attempt to disrupt and expand the concept of public beyond the human and beyond the obvious.

NMcG: I don't consider myself a public artist. Or not any more than the next person. I guess you don't have to be a public artist to be able to make a piece of public art! I've an interest in the public realm through some of my architecture and education work, and I'm interested in the social and political aspects of public art. I think public art is any artistic activity that seeks out, or actively tries to engage, a public. That could be permanent or temporary, a publication or performance, as much as it could a sculpture, monument or mural. One aspect of this project I really enjoyed was the ability to move between these different modes of activity. I feel this project has something of all these things in it.

MD: I was interested in thinking about public art from an ecological perspective. Public is usually taken to mean human public. I think this means that a lot of public art focuses on the histories, uses and possible futures of a location in human terms. Nick and I have been working with the practice of treating things that are not human (like rivers or water) as our collaborators, and trying to make work that reflects more than just a human perspective. The canal has a rich human heritage, but it is also now an important habitat for plants and wildlife, and part of Glasgow's blue-green infrastructure. I thought that this project would be a great opportunity to bring these things – heritage and ecology – together: to make public art for a more-than-human public.

Q: What were your thoughts on reading the brief? Was there anything in it that you felt unsure or uncomfortable about? Was there anything in it that you wanted to criticise or re-frame? Did you have any preconceptions about the kind of work that the commissioners might have in mind?

MD: I assumed that 'public' in the brief was referring to human publics. I wanted to expand that to include other-than-human things that used or were part of the canal. I thought that the word 'permanent' seemed to be used without acknowledgement of debates about the value of 'permanent' public art. Or that 'permanent' implied permanence on a human timescale. I was interested to see if we could question taken-for-granted ideas of 'permanent' and 'temporary' in our approach to the brief. I was also a bit sceptical about the 'local community' engagement. I didn't think that there was a defined, 'local community' for the canal and wondered how we might engage meaningfully with local people in a relatively short period of time. And I was also a wee bit wary of the phrase 'regeneration aspirations'. 'Regeneration' agendas can often lead to poorer and less privileged people being forced out of an area. I'm aware and wary of art and artists being co-opted into that process. Maybe arrogantly, I thought that we could engage critically with these ideas and involve the commissioners in conversations about them. I suspected that the commissioners (Scottish Canals, rather than Glasgow Sculpture Studios) envisaged a fairly conventional type of sculpture that was relatively spectacular and selfie-worthy. This was based on Scottish Canals' previous sculptural commissions, like *The Kelpies*.[33] This wasn't what I had in mind.

NM: The words 'permanent', 'knowledge', history' and 'heritage', used in the brief, all make me feel slightly uncomfortable. These words are key to any preconceptions I formed about the type of work the commissioners might have imagined. However, they also got me interested because I was keen to question the assumptions that might underpin their use. Surely this is one role of art and artists, to

question these assumptions? I felt we had an opportunity to challenge this interpretation and to propose a very different process with, hopefully, a very different outcome.

NMcG: I feel really nervous around the instrumentalisation of public art, in as much as I feel reticent about art being co-opted into social programmes or very mediated experiences: ones that have the flavour of something being co-created, but often deal with this very superficially. Of course, this doesn't only happen in art. It can be equally true in urbanism, planning and community work. In the place we were working, you're really aware that you're working in the context of a broader programme of 'regeneration'. You're aware of this, while also trying to stay critical where necessary. I hope the remaining pieces of this project – the traces left by it – leave enough space for people to discover and reflect on them in their own terms. And that the way they were generated was with the canal and its communities, but without falsely promising a co-creation process that more often than not just can't be delivered.

Q: How did you respond to the brief? What did you propose as an 'expression of interest'? Why?

MD: Nick and I had been working with performance scores, or sets of instructions, in a recent project. We wondered if we could use this form, influenced by the Fluxus artists' 'event scores',[34] as a way of inviting visitors to 'engage physically and imaginatively with the canal and its surroundings'. (This is a quote from the expression of interest we submitted.) We proposed that we would devise, in community workshops, 'a series of playful but meaningful actions in and with the canal and surrounding environment, which can be carried out by anyone'. Prompts

for or traces of these actions would then be installed on and around the canal as 'permanent' artworks. In the expression of interest we said that 'the action-based nature of the artworks is intended as a counter to ideas of permanence and monumentality'. To make the permanent works, which were likely to be text or graphics-based, Nick and I wanted to work with someone who was particularly interested and skilled in graphic design. We'd both really enjoyed working with Neil before, and so we invited him to join the team.

NM: We set out a way of working that would involve devising a suite of actions or events, which would develop into objects that were linked to these actions or events. We suggested that 'histories' and 'publics' were far more slippery and complex categories than might often be assumed. We also proposed that time and the environment would be important collaborators in making the work. What I mean by this is that once we had installed the 'permanent' artworks, weather and time would start to remake the works in new ways.

Q: How did you approach Stage 2? How did you research and develop the detailed proposal? Who and what did you work with?

MD: One of the most significant things we did was to spend a day with Tam Reston, the Scottish Canals employee who's responsible for managing water levels in the canal and maintaining the mechanisms that allow this regulation of water. Tam had just started working for British Waterways in 1993 when Nick and I moved onto our boat at Applecross Street Basin – so it was a bit of a reunion. Nick and I accompanied Tam on his daily routine. Each day he visits the feeder channels, reservoirs and other in- and outlets

linked to the canal, which are spread across central Scotland. It's a round trip of about one hundred miles. Tam showed us how he adjusted sluice gates, cleared weed, and tweaked the system to ensure the water levels remain within an agreed margin. He told us how responsible he felt and how anxious it sometimes made him. He is always aware of the weather, whether there is heavy rain or a lengthy dry period. He told us that some of the mechanisms are over one hundred years old and some infrastructure dates from the canal's opening in 1790. Tam said that most people just think the canal is 'a big ditch'. There is very little awareness of the complex network of channels, reservoirs, and sluices that support the canal, or that the canal is not a static body of water, but flowing. We were really struck by this and by the largely unseen work that Tam and others do to maintain the canal system. We felt this was something we should reflect in our proposal for the public artwork(s). We spent time talking to Davie McRoberts, Tam's overseer, and who we also knew from over twenty years ago during our time living on a canal barge. Davie was then a trainee 'canal man'[35] with British Waterways. Davie showed us drawings and plans of the canal network and explained more about how it was maintained and operated. Scottish Canals' Senior Heritage Adviser, Chris O'Connell, gave us access to an archive of plans and drawings, some dating back to the eighteenth century, and told us about some of the industrial archaeology of the site. Otherwise, we spent time walking by the canal, and generally hanging out in the area, watching what people did on or near to the canal and talking to them. We also held workshops with some local community groups.

NM: For me this was the most important stage of development for the project. We found out about the daily operations of the canal, and about its histories. I was particularly interested in how, or whether, the canal was an integral part of the water systems of central Scotland. Minty has described the day we spent shadowing Tam Reston. It was fascinating to see how he controls the flow and collection of water from all over the central belt of Scotland and directs it to the canal or, in times of heavy rainfall, mitigates against local flooding – this basic mechanical action of operating sluices carried out by a single person. This almost daily process has been going on since the canal opened. Even when the canal was closed to shipping in the 1960s it had to be kept up. I found myself thinking about sluices a lot. Tam has a wooden stick shaped like a crutch with notches in it. When the small arm of the crutch is placed on a particular stone Tam can tell precisely whether the canal is rising or falling and prepare his next day's actions. He works with weather predictions and intuition combined with his years of experience and the inherited knowledge of the people doing this job before him. This knowledge will likely be lost when Tam retires, as his role will not be replaced. Instead a complex series of sensors linked to a computer simulation will do this job. We also researched the cargoes that were transported on the canal in barges or scows, and the science of buoyancy. We studied the construction of the canal; the materials and processes that made it possible: puddle clay,[36] stonework and engineering. There is very little human-made material involved in the construction of the canal, which means it can, to a large extent, be left to its own devices. It doesn't corrode or wear out in the way that manufactured materials might. We learned that the water level in the canal was higher when it was in full operation but that a decision was taken to lower it when the canal was closed to water

traffic in the early 1960s. This had the effect of drying out the tops of the banks to the extent that the water can never safely be returned to the higher level. We discovered the foundations of a small iron foundry near Applecross Street Basin and thought about the iron and other materials used in the construction and maintenance of the canal.

Q: What did you propose for Stage 2? How was this proposal received by the panel and commissioners? Did you have to make any changes?

MD: We proposed three linked artworks, which each had 'temporary' and 'permanent' elements – they were a combination of transient live events, or performances, and more enduring sculptural installations. Two of the proposed artworks – *Displacement* and *THEN/NOW*[37] – are the ones that we made and installed. The third one, *Sluice*, was more controversial. For *Sluice* we proposed installing a small, specially designed sluice gate in the canal wall near Baird's Brae (a small road that leads up to the canal). Our idea was that when the water level in the canal exceeded the optimum a small sluice would be opened allowing a stream of water to run down a channel cut in Baird's Brae and into the city's drainage system. This proposal was inspired by our day trip with Tam Reston. We wanted to make the unseen labour and infrastructure that supports the canal more visible and to celebrate the people who maintain the canal. We also wanted to draw attention to the canal's interconnection with a wider water network. We imagined that *Sluice* would be the hardest of the three works to 'sell' to Scottish Canals. We knew it needed buy-in, so that opening and closing the sluice gate would become part of Scottish Canals' operational routines. We'd given a lot of thought to the practicalities, and health and safety issues, such as what happened if the

water froze or the drain became clogged with leaves. We were awarded the commission, but with some practical questions about how the *THEN/NOW* carvings would be realised and about the feasibility and suitability of *Sluice*. After some back and forth, during which we provided more details about the installation and maintenance of these two works, it became apparent that Scottish Canals had significant reservations about *Sluice*. Asides from some practical issues, it gave the 'wrong' message about Scottish Canals: it implied that Scottish Canals were wasteful with water, letting it leak from the canal into the drainage system. It was clear that our arguments were not going to change Scottish Canals' opinion. We agreed to come up with an alternative proposal and a new timeline.

Our alternative proposal, for *Reservoir*, referenced some of the same ideas as *Sluice*. It made connections between the canal at Applecross Street and the network of reservoirs and channels across Central Scotland that supports it. But it didn't really make visible the people who are responsible for maintaining the canal, or some of the mechanisms needed to maintain it. I admit I'm still a bit disappointed that we weren't able to make *Sluice*. I imagine it most times I walk up Baird's Brae. *Reservoir* is a more conventional form of sculptural work, which doesn't perform in quite the way we imagined *Sluice*. But I've grown fonder of *Reservoir*. I really like the way the carved miniature *Reservoirs* have become wee 'worlds', like rockpools, and that they change so much depending on what's in them (including regular fag ends and the obligatory Buckfast bottle). I like that they are used as seats and gathering points. I also really like that we insisted on placing two of the *Reservoir* carvings within the grounds of Scottish Canals' headquarters, which was then a locked, private compound. When we proposed this,

the question of whether this was 'public' enough was raised by Scottish Canals. We argued that 'public' had to include people who worked for Scottish Canals. Since they were installed, Scottish Canals have removed the locked gate and some fencing so that there's free access to Scottish Canals' headquarters – and to the two *Reservoir* sculptures located nearby.

NM: We were really pleased that the selection panel appeared to like our proposal, with its ideas of non-human publics, the importance of time and weathering and making inobtrusive, subtle art works. Like Minty, I'm still sorry that *Sluice* didn't happen. I envisaged this small but regular action becoming a micro-event. People might time their visits to the canal to see it or just happen across it.

Q: How did you negotiate and manage the realisation of the work? Who and what did you work with?

NMcG: One of my favourite aspects of this project was the range of people we got to work with: geologists, geographers, typographers, filmmakers, canal operatives, to name just a few... There were so many people involved, all of whom I learned something from, whether that was the foundry team, Scottish Canals staff, or David the stone carver we worked with. So many histories, practices and processes, and so much embodied knowledge.

NM: We had to negotiate permission to carve into the stone walls of the canal for both *THEN/NOW* and *Displacement*. The canal is a scheduled monument[38] and so it's necessary to obtain permission from Historic Environment Scotland to make any alterations to its fabric. This actually proved pretty straightforward. Because of its age, the canal is a mix of

materials; it has been repaired and altered in different ways over the decades. It's not a pristine heritage site originating from one period. Adding our small interventions into its fabric wasn't considered a problem.

For *Barge Pull* we borrowed a maintenance barge from Scottish Canals. I engaged a marine engineer to assess the weight-loading for the barge and its stability when loaded. We also needed a timber company to supply and load timber onto the barge. We spent a lot of time meeting and chatting to canal users to encourage them to be part of the event: cyclists, kayakers, dog walkers. And of course we had to do some tests to make sure that our idea would work! Could a group of cyclists move a laden timber barge? How would they be attached to the barge? There were a lot of questions, much hauling of ropes and head scratching. On the day it worked very well with Neil on megaphone as compere, Minty on organising participants and measuring the distances each of them travelled, with the help of Fi Johnston and Cal Hal-Gardiner, and me on safely attaching the towing lines, as well as general encouragement. We wanted the event to be accessible to anyone who wanted to take part. We wanted it to appear loosely organised but with easily understood instructions. Like a primary school sports day: 'hold this rope and pull when we say "go" and stop when we say "stop"'.

There was a lot of preparation and planning involved in casting the iron ingots that memorialised the barge pull. We worked with artist Ginny Hutchinson, who has experience of metal casting and also with George Beasley, who is a bit of a guru in the world of small-scale artists' foundries.[39] First, we had to build our own cupola furnace to melt the iron. Iron melts at just over 1500 centigrade so the furnace

needed to be able to achieve temperatures in excess of 2000 centigrade. Ginny and George adapted a tried-and-tested design that would be big enough for our needs but still portable. George ran a master class at Glasgow Sculpture Studios with the team of artists who would be carrying out the iron founding, in order to test the operation of our cupola furnace. It was a pretty amazing couple of days and we all learnt a huge amount. Meanwhile, Minty, Neil and I designed the ingots and created the moulds. It took a day to set up the furnace on the site of the old Victoria Foundry near Applecross Street Basin.[40] There was also a lot of preparation: breaking scrap iron (some from old canal fittings) into small pieces, chopping the coke we needed for fuel. By the late afternoon we had a small crowd of onlookers. It was a lovely late-summer evening. Watched by our audience, we heated the coke and melted and poured this immensely hot, elemental and magical liquid into our resin-sand[41] moulds. The team of Ginny, Shireen, Becky, Mark, Sarah and me, with the reassuring oversight of Eden Jolly from Scottish Sculpture Workshop[42] did a great job. The heat was intense and so was the concentration but we filled all of the moulds successfully, to my great relief! Then there were celebratory beers with our audience who seemed fascinated by what they had just witnessed.

The next day we took part in a public event co-organised by Scottish Canals' Senior Heritage Adviser Chris O'Connell.[43] Archaeologists and historians worked with members of the public on a dig to uncover some of the foundations of the old Victoria Foundry while talking about the history of iron working in the area. We worked alongside, breaking the ingots from their moulds and cleaning them up, chatting to people and showing them the now-almost-cool furnace.

The *Reservoir* sculptures were all carved by David F. Wilson in the Applecross Street yard of Scottish Canals' headquarters. It was amazing to watch David grind and chisel this immensely hard rock, working from cardboard templates I had made, and getting down to the fine detail of the reservoirs' contour lines. The precision he could achieve was extraordinary. The *Reservoir* blocks were positioned in early November. Later in the year David cut the *THEN/NOW* lettering into the canal walls. Finally, during early December he cut slots out of the canal copestones for each of the *Barge Pull* ingots. As the day darkened, a frozen David finally completed the installation, marking the end of the human production phase of the project, and the beginning of the works' more-than-human transformation. I hope this transformation will continue long after I am dust.

During the whole project we worked with film maker Christopher Quinn, who documented all the events. The brief we gave him was to focus on the non-human materiality of the project, while also giving a sense of the process. I'm really happy with the film. Christopher and sound recordist Anthony Allen responded really sensitively and creatively to the brief.

Q: What aspects did you particularly enjoy or find most interesting? What surprised you?

MD: Lots of things! I was nervous about the *Barge Pull* as I wasn't sure who would show up and take part and how they would react. But people were really enthusiastic and we had some great responses. They said it was 'wonky, generous and strangely moving' and 'lovely, surprising, foolish, unnecessary, essential'. The Iron Founding event was wonderful. I was pretty terrified by the prospect of melting

and casting iron as a public event. I am in awe of the team who did it. And when we cracked open the moulds and saw that the casts had all worked out perfectly I was delighted – and amazed.

NM: The chance to work collaboratively with so many different, skilled people was amazing. I appreciated the way the project was able to develop over time, and that it seemed very accessible. I'm pleased that we trusted and stuck with the subtlety of the works; the choice of materials and minimalist design. We didn't feel pushed into adding anything else.

NMcG: On a personal level, the highlight of the project for me was the learning. I felt like it was such a rich learning experience on so many different levels, and at every point of the process. I think as a team of three we all bring something different and this works well. I learned a great deal from Nick's ability to get stuff done. It's really phenomenal – amazing to see at close quarters. I think it comes from a theatre production background and having to apply learning from one field to another. Minty has an ability to contextualise what we're doing and why, and provide a challenging intellectual framework that helps you focus your thinking and ideas, and fuels really good discussions and debates. She's also good at writing about the project, helping provide the language and articulating the context for the work. And she's a complete control freak, so I very much doubt this sentence will make it to the final edit of the book! But that's only the learning that happened between the three of us. When you multiply that across the many, many people involved, you can see it's such a rich environment to be part of. My hope would be that everyone involved in the project got some of this: the chance to engage with and learn from each other.

Q: How do you feel about the project/work now?

NMcG: I feel positive about the work. In probably quite a hubristic sense, I like the idea that some parts of the work are very 'permanent' and not easy to move, and I enjoy seeing them if I cycle or walk past. In my more vainglorious moments I imagine people in years to come looking at the carvings or the ingots in the canal bank and wondering what they were for – a sort of coded message from the past to the future. I think (just to puncture that bubble for a moment) on a day-to-day basis it probably goes largely unnoticed, or operates as a sort of quiet backdrop to the other comings and goings of the canal, but we always thought that would be the case. We always wanted to provide a counter to the idea that public art needed to be a singular or iconic object or statement. I enjoy the fact that different parts of the work operate at different volumes and at different paces. I enjoy the fact that it is often the work plus whatever weather events have happened, or debris that has been left on or in the artworks. The works feel quite embedded in the canal, rather than just next to it. I do wonder if aesthetically we could have been bolder. Everything had a reason in terms of the materials used and the form they took, but maybe if doing this type of thing again I might be more confident about the hands or presence of the artists being more visible in the work, even in a small way.

NM: I'm really enjoying how the works are changing. The reservoirs have become micro-environments for humans and non-humans; the iron ingots seem like they are finding their place nestled in the copestones on the canal side. I realised that during the COVID-19 outbreak the lower half of the *NOW* lettering is slightly submerged. When I visit the canal I wonder what, if anything, people, animals and

other things are making of these objects: what stories are told, what events happen, what are the consequences of them being there?

MD: I continue to be surprised and pleased by the project, when I see people, animals, plants, weather and other things interacting with the sculptures in unexpected ways, years after they were installed. I wonder, though, if we might have engaged with some of the darker aspects of the canal's history: the links to the slave trade (some of the canal's funding was from profits from slave-run tobacco plantations)[44] and the conditions of the people who built it, the navvies. But then, that would have been a different project.

BARGE PULL: REFLECTIONS
FRANK GILMOUR

Frank Gilmour farms at the Old Corn Mill, Port William, Dumfries and Galloway, where he carries out the majority of farm work without contemporary agricultural machinery. Frank works with Clydesdale horses to plough, mill and undertake other heavy tasks. Frank agreed to bring one of his Clydesdales, Spud, to Glasgow to take part in the barge pull that was part of the *THEN/NOW* project. Frank writes about working with horses and his experience of participating in the barge pull with Spud. Frank wrote this in November 2016.

The opportunity to pull a barge. With all horse work, especially with something new, a system of softly, gently must apply. Logic slightly goes out the window as you never know how a one-ton, five-year-old Clydesdale will behave. Hours of training goes into each horse. Some pick up certain traits as you progress, ever aware of the day that a step too far might be closer than you think. I put my trust in him in everything we do, from walking down the road to having new shoes fitted. It's hard to imagine that hot-shoeing a Clydesdale might be one of the most dangerous jobs a man could do. So, trust is our building block. Each experience brings more confidence and the opportunity to try something new, an adventure.

It's not every day Spud gets to pull a barge and the build-up to the event was spent getting him used to the horse box. You can't push a Clydesdale into a space he is unsure of. Once I was certain he had no issues with the box, we spent all our spare time pulling a large tyre– anything to get him used to pulling. Perhaps, in hindsight, pulling five or six tyres connected together might have been closer to the mark – more like the weight and drag of the barge.

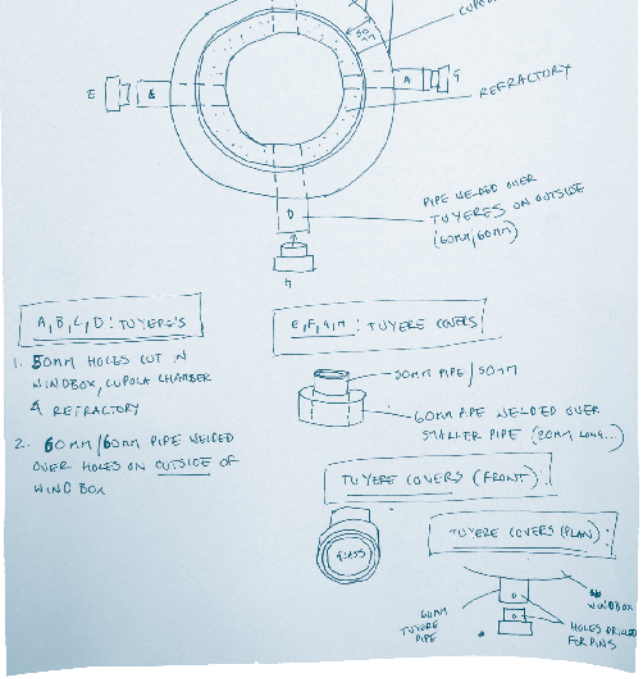
The day soon arrived and we made our way to Glasgow. We made good time and a fine day greeted us at The Whisky Bond, beside the canal where the barge pull would take place. Spud was no worse for his travels and he was soon having a drink and bite of grass and meeting loads of new people. He loves attention. A small boy hugged him so much he refused to let him go and cried the place down as he was dragged away by his mother. Another child asked to see Spud's wheels and was mortified to see a set of shoes nailed to his feet but eventually picked up the courage to pet Spud, although from a distance. In a child's eyes, he must look like a giant.

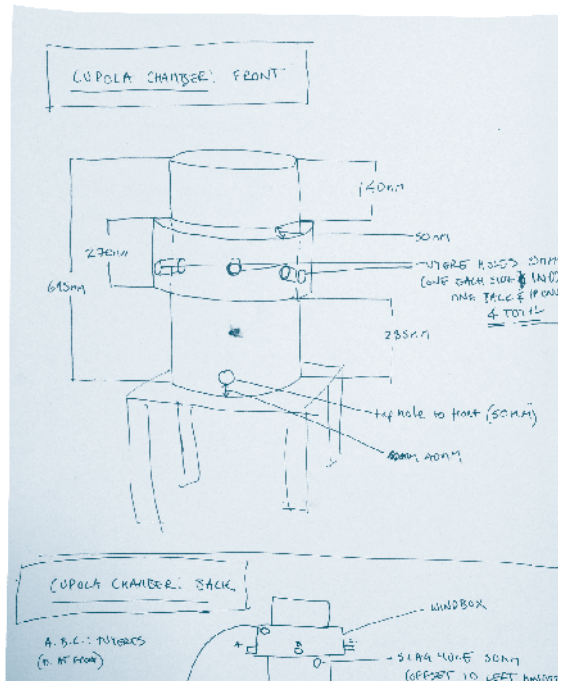
The barge pull was good fun. Challenging in many ways. The aim was to pull the barge as far as we could in two minutes. In the first pull Spud took up the strain and feeling no give, stalled. The harness went taut and no ground was made. A horse needs to know it will move or he will soon stop trying. The second time I encouraged him to pull by taking the strain and moving one step at a time. The barge slowly crept forward. All-in-all, not Usain Bolt,[45] but a great learning curve for me and Spud. After a bit of research, I found out that a longer and lighter rope was used in pulling barges, which gave a bit, helping the horse to get some momentum. If the rope is short, it can pull the horse into the canal. I hope the onlookers enjoyed having Spud. He certainly loved the attention.


1x HEAVY HORSE
59.6 METRES · 2 MINUTES

TEMPORARY IRON FOUNDRY: REFLECTIONS

Artists Becky Sik(BS) and Shireen Taylor(ST) spoke to Nick Millar(NM) and Minty Donald(MD) about their involvement in the *THEN/NOW* project in October 2016. Becky and Shireen were part of a team of artists who, together with Ginny Hutchison (team leader), Sarah Forrest and Mark McQueen, fabricated the iron ingots for *Displacement*, one of the three permanent *THEN/NOW* artworks.





The ingots were cast using a portable furnace erected temporarily on a site on the north bank of the Forth and Clyde Canal where a small iron works, the Victoria Foundry,[46] stood in the mid-nineteenth century. The iron pour and casting were witnessed by an audience of around one hundred people at a public event, which marked a moment in the complex and lengthy process of creating the *Displacement* artwork. The part of the process on which this interview reflects – manufacturing the iron ingots – began with the fabrication of the portable furnace.

Furnace fabrication was overseen by Ginny and carried out at Glasgow Sculpture Studios. Ginny and her team received expert advice on this specialised process from George Beasley, who was a pioneer of the small-scale, studio furnace movement in US art schools in the 1970s.[47] As well as advising on furnace construction, George ran a masterclass in mould making and iron founding techniques at Glasgow Sculpture Studios, training the team of artists, several of whom had little or no experience of metal casting.

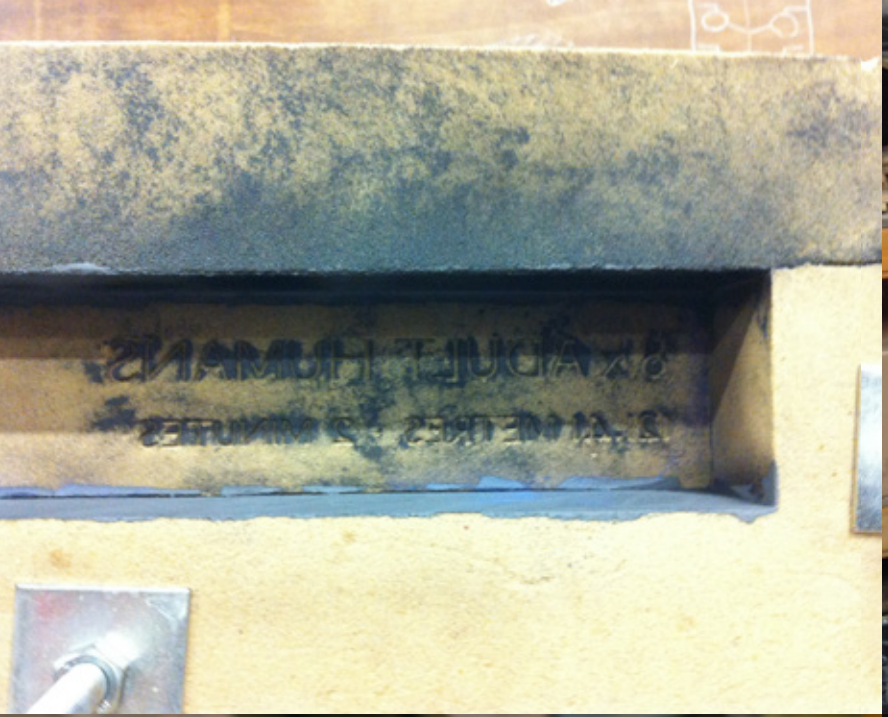

1 x LABRADOR DOG
36.25 METRES · 2 MINUTES

The lettering for the ingots was designed by Neil McGuire and Imogen Ayres. Neil based the design on a font called Thames Capsule, a typeface with suitably watery connections.[48] Their drawings were converted into 3D-printed plastic polymer patterns, which Nick and Minty used to make moulds from a mix of resin and sand, applying a fine layer of graphite as a release agent to prevent the resin-sand mix sticking and to allow the delicate lettering to emerge crisp and legible from the mould.

Further preparations included sourcing scrap iron (some recycled from Scottish Canals' workshop), breaking it into pieces and measuring out portions suitable for the furnace, chopping large blocks of coke (a coal-derivative used as fuel for the furnace) into chunks small enough for the furnace, preparing the crucibles (metal buckets lined with insulating material, used to catch the molten iron) and sourcing and fabricating gas torches and air blowers (to ignite the furnace and enhance the heat).

Nick and Minty's conversation with Becky and Shireen describes and reflects on the process of casting the ingots. The conversation touches on the ways in which some of the overarching themes and preoccupations of the *THEN/NOW* project are manifested in this process, such as perceptions of mutability and stasis, the agency and vitality of other-than-human matter, the changing social, cultural and material environment of the canal, and expanded understandings of 'public' and 'community'. For instance, Nick, Minty, Becky and Shireen discuss their, almost incredulous, responses to the volatility and extreme liveliness of the iron, a material more commonly experienced in its inert state, during the founding process. They speak about the 'performance' of the iron as it transformed from solid, to molten, to solid, and the ways in which this performance was interdependent with the performance of other non-human matter, such as the coke that fueled the furnace or the weather, and with the performance of the human iron-founding team. They reflect on labour in both a cultural and industrial context, and how these two contexts relate to Glasgow's changing status: from industrial to post-industrial city. The conversation considers the communality of team-working, iron founding as part of Glasgow's heritage and as a contemporary art practice.


LABRADOR DOG



Lively Matter

BS: I find the science of the furnace pretty incredible.

ST: Yeah, it's fascinating. What I really liked about the furnace was the way that the blowers circulated the air around in order to raise the heat.

BS: It's about bringing air in and circulating it around to distribute the heat where you want it.

ST: It's really fascinating to see how you can get that temperature with coke, which I've used before in a domestic setting. It's incredible the level of heat!

MD: About 2000 degrees [centigrade] I think?

ST: You're outside and there's fifty metres between you and the furnace and you can feel the heat. It's sort of wrong.

NM: It did surprise me that you mix the fuel and iron together and you get pure iron. How does that work?

BS: When the metal becomes molten it's quite good at getting rid of the other stuff that appears as slag [waste product from burnt coke] on the top of the molten iron.

BS: With an iron pour you have a hole which is all bunged up with a plug of resin and sand called a bott. It's essentially a spout that lets the liquid metal out the bottom of the furnace. So, once you get the indication that the metal is up to temperature that hole's opened up and the metal rushes out extremely quickly and fills a crucible.

BS: And then you put the bott in again to bung it up. It was Ginny doing the bunging on this pour.

MD: You just have to stuff it in the hole. That's terrifying.

ST: You just don't think that sand should be able to do that – that sand can hold back the melted iron.

NM: It's so bright, isn't it, molten iron.

BS: With molten iron you get a real sense of the temperature because it's so intense.

ST: It's amazing watching it cool as well. It's still red for quite a long time. And you sort of feel like you should be able to touch it because it's not runny anymore, when it clearly stays really hot for a very, very, very long time.

MD: In the iron pour I also had a sense that the materials were performing. You don't tend to think of iron performing or being active. Most people think of it as static and solid.

BS: It does start to feel really kind of alchemical or something. I guess my background is in sculpture and so you're used to that idea of processes transforming materials, but with iron it's maybe one of the most extreme transformations in the way that you go from solid to liquid to solid again.

Team Work: Art and Industry

BS: I really love the process of iron because you can't do an iron pour on your own. I love the communal aspect. I love that reliance on each other with iron founding and the specific jobs that people have to do – team working. I think, particularly, I like this because art is often seen as a solo pursuit.

ST: That's what I really liked about what we were doing. There's also such a strange relinquishing of responsibility.

MD: You're in a process and you're not responsible for all the whole thing. You can't get stuck and obsess over details.

NM: You couldn't do it without somebody leading the team.

BS: Particularly if you've got people of different levels of experience.

NM: If you were doing it day-in day-out then you would define your role and you'd know exactly what you were doing, maybe without a leader.

BS: I guess people working in industrial foundries had very different kinds of roles – they were employed to do a particular thing. But with ours, the experience level differences were so vast that somebody had to take charge. That's one of the implications of taking what would have been traditionally an industrial manufacturing process into an art context.

NM: It is to do with size but it's also to do with accessibility. The idea that you can bring a small team of people together and actually make iron, as opposed to getting something

made in an industrial place where it just becomes part of a mechanised process.

BS: I suppose it's also interesting in a contemporary context where some of these risks of setting up a small artists' furnace come up against current health and safety policies.

NM: Do you feel it's dangerous?

BS: Well, yes and no. I think all metal casting processes have their dangers. It's about doing it in a safe environment with people who know what they're doing. That's what is amazing about the teamwork part of it. One part of the team can't really break down – the chain has to stay. You need decisiveness and confidence. It's just about putting all the parameters in place in case anything goes wrong – you know how you'll deal with it. It's almost more safe than other things that you might not be as conscious of.

ST: It was very ordered. Getting bossed around by Ginny was good fun.

BS: In iron pours you get shouted at quite a lot, but it's just because there's no time. It's not an aggressive shouting. It's just that you've got to have instructions clear and quick.

BS: There is a reasonable amount that can go wrong. For example, if it starts pouring with rain [moisture meeting molten iron can cause an explosion]. There would need to be a decision: do you want the iron poured or do you want to save your moulds for something else? But then with iron it's not like you're going to start the whole process again. And you need to empty the furnace. The wind also affects the burning. It needs to be taken into consideration.

MD: I was really struck by how many different steps of preparation there are and how long everything takes. And if one thing goes wrong it can take you back to scratch.

ST: Compared with the way many artists work and their studio practice, it was an entirely different approach. You can't just mess around and go 'I fancy doing that today. I really want to know what that looks like', you have to prepare in advance, and you get one shot at it.

BS: In an art context you're used to a percentage failing. When it comes out, it's always a bonus!

MD: But all the iron casts did work out!

The Iron Founding Process: Women, Heritage, Performance

MD: I loved the fact that the iron founding team for *THEN/NOW* was mostly women.

BS: When I was interviewing foundry workers in central Scotland,[49] I interviewed a few women because the women kept the foundries running when the war was on but then they promptly lost their jobs when the men came back. So, actually, there was a history of women in the foundries. But, for the ones that hadn't worked in the foundries, a lot of them had never really known what their husbands did. Although it was such an important part of their lives, they were shut off from physically being in the foundries.

BS: I think it's a bit of a generalisation but there can be a slightly different approach where it's mostly women.

Iron pours are amazing but can feel like quite a macho endeavour in terms of the bravado around it. So, for some people it can become quite a scary process because it's almost about emphasising the danger. Then there's other people who've got a more meditative approach.

ST: It's to do with time and rhythm. It's a steady paced kind of endeavour. I quite like it when I've got instructions and a clearly defined role.

MD: What were your specific roles?

ST: I was a scraper. I had a big scrape-y pole stopping all the slag running into the moulds. [Some slag – waste product from burnt coke – escapes from the furnace spout into the crucible and floats on the molten iron. Shireen's job was to skim it from the surface of the molten iron.]

BS: I was pouring the iron from the crucible into the moulds, which seems like such a straightforward task but I found it extremely difficult. [The molten iron pouring from the furnace is caught in a crucible – an insulated metal bucket – which is attached to two long poles. The pourers each take one end and tilt the poles to pour molten iron into the moulds.] It's amazing to think that something as simple as pouring becomes this collaborative thing because both people have to keep it perfectly level and tilt at roughly the same speed or the iron just starts to slop about everywhere. And obviously, apart from the danger, there's also the fact that you've put all that effort into melting iron and then it might all go to waste if you spill it. Or, the mould-making process isn't a fast one, so if you mispour then you've lost the whole mould. There's not really a second chance.

MD: And it's not something that you can rehearse.

BS: That almost makes it worse, though, because you do rehearse with the empty crucible but the difference between when it's empty and when it's full is phenomenal. Actually trying to hold the thing when it's full is really hard because it's so heavy. And then trying to pour it neatly into a reasonably small hole.

MD: How did you feel when you were doing it?

BS: I think it is quite adrenaline-fueled. I think that's what makes it so addictive and exciting. I've done research and interviewed people working in the iron foundries in Scotland. It was really common that when people retired they died quite quickly. They thought it was because they spent so long working in this really extreme environment. A lot of them were working seven days a week. So, to do just one day you really realise what a crazy thing it is... it's exhilarating but it's exhausting.

BS: If we had enough material, you could keep it going for...

ST: perpetuity.

BS: Some of the bigger industrial foundries ran twenty-four/seven.

NM: I hadn't thought about it as a perpetual process. It just keeps going the whole time. You just keeping charging the furnace [adding coke/fuel and solid iron]. It's like, that's twenty kilos of iron. In six minutes there'll be another twenty kilos.

ST: And then you think about that in terms of how performance works and in terms of there being a rhythm.

BS: I mean, it is a performance but we made it even more of a performance, I suppose, by having an actual audience.

BS: What's nice about the audience is that you're in the middle of pouring it, and then you hear the shock of the public where it's the first time they've seen molten metal. That first sighting of molten metal, it's quite breath-taking. It's quite unforgettable.

BS: With this project the iron pour was taking place within a public context. It was about a dialogue between people who were extremely specialist in the subject, people that are just learning and people that have maybe never experienced it before. Then it's taking place in a city where iron work is steeped into the fabric of the land. It's part of the industrial heritage of Scotland and part of so many people's lives. So, although we presume a lot of the public don't know about iron founding, it's probably the younger public that don't know about it. A lot of the older public did, because a lot of them worked in the foundries.

MD: The iron pour was on the site of a former foundry. Do you think the site contributed to your experience at all? Were you aware of being on a site where people had done iron founding before?

ST: Not in the moment of doing the pour, no. But it was really interesting to be able to use that site.

BS: I think in that whole area of Glasgow there's so many people whose relatives maybe worked in the foundries. I suppose it's like a wider kind of knowledge – Glasgow's just like steeped in it. There was one guy who I spoke to, his family members had worked in the iron industry. In Scotland you usually find people that have a link to some part of the foundries, whether it's specifically on the site or somewhere else.

ST: I guess it reactivates that conversation when you locate something like the iron pour there.

BS: I think what's interesting is that it also gives you a physical idea that this stuff is literally going into the earth. So when you start to think about the site of an old foundry, you think 'what's underneath'?[50]

MD: The thing about the industrial heritage and the stuff literally seeping into the ground. There's a lot of contaminated ground in Glasgow.

BS: And toxic conditions that people worked in. I think they worked with asbestos powder as a mould release in the foundries.

MD: I spoke to a guy watching who was sketching, taking notes and things.[51] His dad was a pattern-maker in the foundries.

BS: Pattern-making's incredible. They had to take the shrinkage of the metal into consideration so they worked with rulers with different scales depending on the metal to be cast. In some of the foundries they were making precision components so all of that had to be very accurate.

MD: It's likely that at Victoria Foundry, which was a small, fairly crude foundry, they didn't make anything very big or complex.[52]

ST: One of the nice things is that whenever you see cast iron now, after the iron pour, you see it differently. And you realise how old it is. I've got this ancient cast-iron sewing machine that's like a hundred and ten years old. You know, but it's pristine. You think about how that got made. You start seeing it differently. And everything else, like drain grates and covers.

THEN/NOW: REFLECTIONS DAVID F. WILSON

David F. Wilson is an artist and stone sculptor.[53] He worked on all three *THEN/NOW* artworks: carving the *Reservoir* boulders, inscribing the letters for *THEN/NOW* and installing the cast-iron ingots into the canal-side copestones for *Displacement*. David reflects on his experience of working on *THEN/NOW*. David wrote these reflections in November 2016.

Over my career as a public artist I have worked on many interesting projects and in some great locations. I am used to creative challenges but I never imagined that one of these would involve descending into a freezing cold canal mid-winter in Glasgow. One of my contributions to the *THEN/NOW* public art project was to carve the words 'THEN' and 'NOW' into the inner walls of the canal. When this was first discussed with the creative team on a warm summer's day, it sounded like a fun task, especially as it was explained to me that there was a 'cunning plan' that would ensure I didn't get my feet wet. As Robert Burn's knew, however, 'The best laid schemes... Gang aft agley'.[54] And so I discovered when Nick Millar called to finalise the canal wall carving. The proposed method of allowing me to work on the canal wall was no longer feasible. Jokingly I quipped: 'what now? Do I wear a wetsuit?' 'It's actually called a drysuit!', retorted Nick. And so it transpired that across two days I donned a drysuit and climbed down into a temporary scaffold platform suspended in the chilly waters of the Forth and Clyde Canal to pursue my craft. V-cut stone lettercarving is one of the sculptural arts practiced over millennia. However, I think I can confidently say that I must be one of a very small band of carvers who have had to complete their task chest-deep in water.

One of the main aspects of this project was to illustrate, in a creative way, the differences between the canal when it had been at its working peak and how it appears to the visitor today. The overarching project title encapsulates this notion in a broad sense but it also relates, in this particular work, more directly to the historical difference in the water levels.


THEN
THEN

NOW

THEN: The water level was higher than it is today. Carving this word was relatively straightforward as it was above water. To ensure I didn't drop my tools into the canal, I bound string to my hammer and chisels with strong tape and tied these to the scaffolding so that if I did drop anything I could retrieve it easily. With a few comfort breaks for some warm coffee, I completed it without any problems.

NOW: Was not so enjoyable. This word was designed to sit exactly on the current water level. Precise measurements had been taken to locate its desired position. The complication came from the (in)famous Glasgow weather. Having rained steadily, and typically, across the previous few days the water level was now higher than the intended location of the word 'NOW'. The water level was above the line where the bottom of the letters needed to be cut. What was needed was another 'cunning plan'.

Arriving the next morning, I found Nick in his drysuit and already in the canal. Overnight, he had devised a solution that might work. Ingeniously, with an improvised box, rubber insulation tubing, scaffold props and a bucket he set about providing a working area that could be kept clear of water and allow me to carve the letters at the correct height, albeit with periodic use of the bucket to clear the water that was continually and inevitably leaking into the box.

As 'NOW' was lower in the canal, more of my body was deep in the water. With having to bail-out and the restricted working space, it took me longer than the previous day. By the time I had finished all the lettering I was frozen to the bone and quietly questioning why I hadn't been clever enough to be an artist who worked in a nice warm studio. The personal reward I get from working on this type of project,

however, quickly takes away the temporary discomfort. The knowledge of making a contribution that people in the future might witness and ponder makes it all worthwhile.

Carving 'THEN' and 'NOW' was my contribution to one in a series of three works that I had been asked to help implement. Other tasks entailed carving out nine granite blocks with shapes relating to the feeder lochs/reservoirs for the canal (for the artwork, *Reservoir*) and installing seven cast-iron ingots into the top edge of the canal wall at specific locations (for the artwork, *Displacement*).

Discovered by the artist team in the overgrown vegetation beside Scottish Canals' workyard, the granite blocks were among a stockpile of materials kept by Scottish Canals. These blocks have their own history. I was told that they had been part of Birkenhead Docks, Wirral Peninsula,[55] which, if true, means that the stones probably came from Kirkmabreck Quarry near Creetown, Dumfries and Galloway, and were cut sometime around the 1850s. It was my privilege to bring some new life to them. I have an affinity with granite as my maternal grandfather was a worker at Kemnay Quarry, Aberdeenshire during the 1930s. I have a notion that the dust that must have coursed through his veins in some ways has passed a love of stone on to me. It is something that made for a very personal connection between me and the blocks as I was working them: my own, personal 'then/now'.

It is my belief that across time our skill and knowledge of how to work stone has actually diminished and that those in the past were far superior in their ability to shape it to their will. As I carved into the dense, hard blocks with all the latest power tools and top-of the-range diamond-cutting

equipment, I contemplated my relationship with stone carvers long gone. Were their skills superior? Did they just have more time? Would they marvel at the technology at my disposal? How I wish I could have asked my grandfather a few questions.

Though the story is almost certainly apocryphal, asked how he managed to create his marble masterpiece *David*, Michaelangelo reputedly replied: 'you just chip away everything that doesn't look like David'. Carving the loch shapes into the blocks was fundamentally the same process: the careful removal of excess stone until the required form is revealed. Though in my case I used modern power tools that cut through the stone with 'minimum' effort. (Would Michaelangelo have used a grinder if it had been available?) Where large areas need to be removed a series of parallel cuts called kerfs are made. Hammer and chisel are then used to knock these off the block. This process is continued until you begin to get close to where you feel the final surface should be and then a small diamond tool is used to find and define the form. Each loch block was completed by v-cutting the name of the loch into one side.

Working from bathymetric[56] maps, carving the lochs was an interesting process. As a maker, you have a very intimate relationship with the thing you are creating. With every element you shape and every detail you work, your own knowledge and perception increases. As I interpreted and transformed the two-dimensional drawing into the three-dimensional carving there was a real sense of, and connection with, the landscape: how building a dam [at Birkenburn Reservoir] created a new form; how, as the water was retained, a new shape appeared that sat snuggly in the surrounding landscape, flowing into depressions and

around projections; how the canal builders used the existing elements of the surrounding hills and valleys to meet their own requirements. In my own way, I was recreating that process. For me, this really brought to life everybody and everything that had been undertaken to create the canal: the financiers, surveyors, engineers, construction workers. Though long gone, their efforts remain tangible.

My final task for the *THEN/NOW* project was to install the cast-iron ingots into the edge of the canal wall (for the artwork, *Displacement*). It was not in itself a difficult process. I just had to make sure that I didn't fall in or drop any of my tools into the canal. Having to wear a bulky flotation jacket 'just in case' didn't make for ease of movement, particularly when having to constantly limbo below the canal railings to access the canal edge. The seven cast-iron ingots were installed across two days of persistent rain. It sometimes amazes me when I look up from the task at hand and see how heavy the rain actually is and think, 'am I really working in this?'

Cutting out a check from the existing copestones of the canal simply for an art project might seem to some a questionable act. Indeed, the artist team and Scottish Canals had to secure permission from Historic Environment Scotland to allow the alteration of 'the historic monument',[57] as the canal is classified. My opinion though, is that everything is undergoing a process of change and that when a project is approached with integrity and respect it can enhance a place. Not every work of art needs to be monumental, and 'monuments' should reflect and respond to change.

David F. Wilson

One of the things I appreciate most about working outdoors on this type of project is the interaction and dialogue I have with passers-by. There is always a curiosity about what I am doing and why. I enjoy sharing thoughts and ideas about the projects I am working on. Many people stopped and chatted while I was working on *THEN/NOW*. Everyone I spoke to was appreciative of the work and some had interesting information about the canal and local area that they were keen to share. For me, that's what makes a 'special' place: its varied histories, the people and things that inhabit and use it, and the ever-changing relationship between the 'built' and 'natural' environment.





ДНЕЙ

RESERVOIRS FOR THE FORTH AND CLYDE CANAL

Paul Bishop

Paul Bishop is a geomorphologist and Emeritus Professor and Honorary Senior Research Fellow in the School of Geographical and Earth Sciences, University of Glasgow. Paul also has a keen interest in local history, particularly in relation to inland waterways. In this essay he presents his findings from archival research and fieldwork on the history and topography of the reservoirs and lades (supply channels) that are connected to the Forth and Clyde Canal. The essay was written in November 2016 and updated with additional research in August 2020.

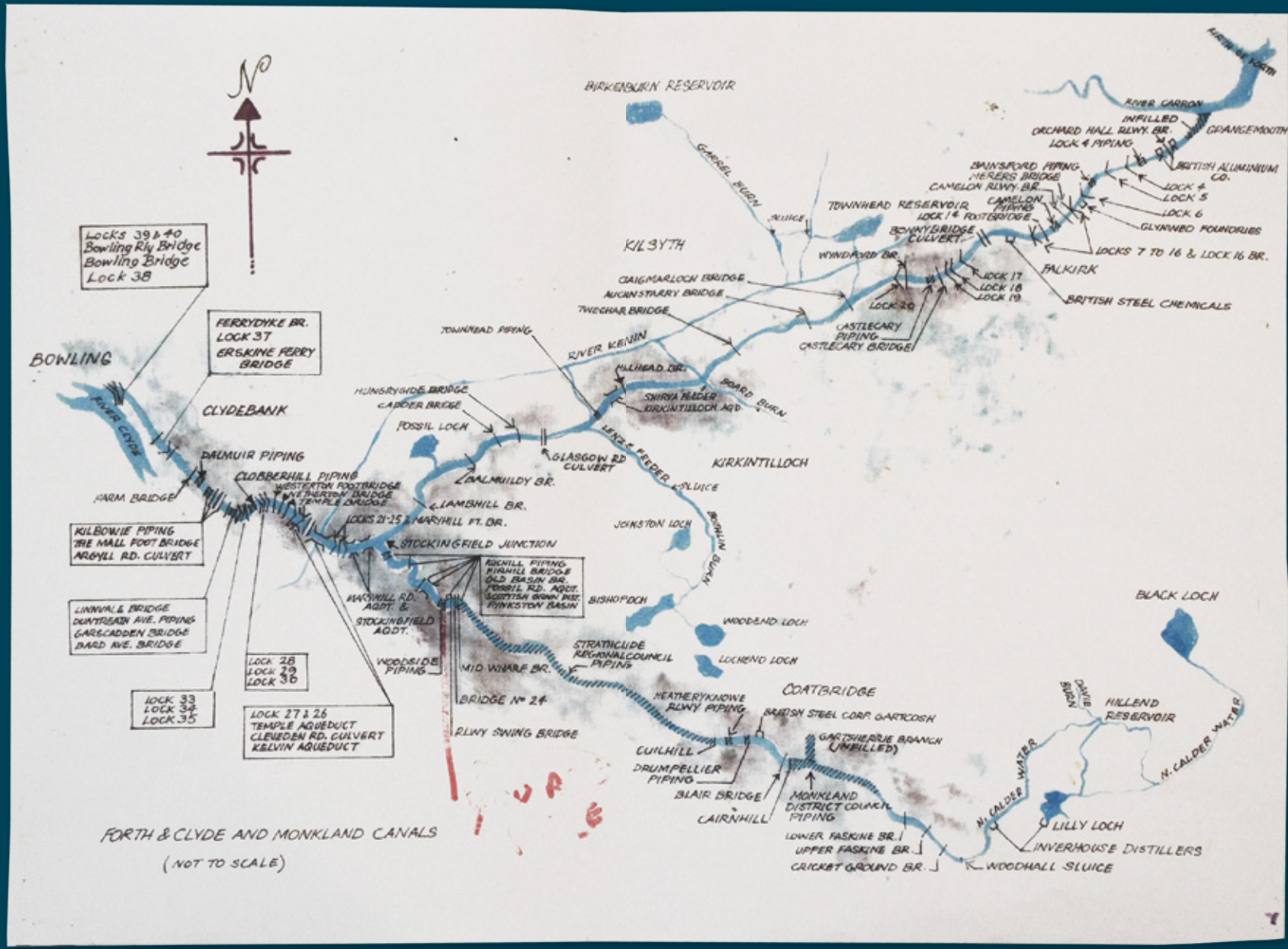
Paul became involved in the *THEN/NOW* project through carrying out hydrographic surveys and providing bathymetric data[58] for four of the smaller reservoirs featured in the sculptural work, *Reservoir*, one of the three *THEN/NOW* 'permanent' installations. Bathymetric data on the larger reservoirs that currently feed the Forth and Clyde Canal are held by Scottish Canals and were used to design the relief carvings that represent those reservoirs. However, there are no such data available for the smaller reservoirs represented in the sculptural work (Bishop Loch, Johnston Loch, Woodend Loch and Lochend Loch – known as the South Lochs). Indeed, there is some controversy about the status of these smaller reservoirs and their linkage to the Forth and Clyde Canal, with some Scottish Canal employees expressing doubts that they were ever part of the infrastructure, or suggesting that they were linked to the Monklands Canal. Paul's essay confirms the South Lochs' connection to the Forth and Clyde Canal.

Canals leak and overflow. Overflow is unavoidable: heavy rain adds water to the canal, which must then be relieved of this excess water. To minimise leakage, canal builders sealed the bottom and sides of canals with a mixture of clay, gravel and sand. This so-called 'puddled' mixture was added to the floor of the canal in several layers and then to the canal walls (Image 1). The canal diggers – the navigators or 'navvies' – trampled each layer of the puddling mixture to break up its structure and make it compact and waterproof once it had dried. The next layer was then added, with a total thickness of forty-five to sixty centimetres of puddled clay sealing the canal perimeter.[59]

Image 1: Clay seal on the upstream (right-hand) side of the mill dam wall, Baldernock Mill, Baldernock, East Dunbartonshire. The seal, to prevent water leaking through the unmortared dam wall, is the triangle-shaped deposit of light-coloured clay and sand material at centre, behind the tree roots. The seal on a canal would have been similar material. Flow, from right to left, is through a breach in the dam wall at bottom left. The burn has cut down through the seal and the sediments – brown, at right – that had been deposited in the dam prior to the breach in the dam wall.

However, the main issue of concern, in relation to water losses from a canal, is not leakages or overflow but the water that passes down the canal every time a set of lock gates is opened to let a vessel pass up or down through the lock. This movement of water down-canal, and ultimately to the sea at either end, is unavoidable and part-and-parcel of canal operation. The canal operators must therefore have back-up water supplies to replace that lost water (as well as, of course, any water lost by overflow or leakage). These amounts are not insignificant, as will be evident when I discuss several of the Forth and Clyde Canal's major reservoirs later in this essay. However, a key point to note here is that reservoirs play an unseen role in the correct functioning of the canal. The Forth and Clyde Canal, as well as providing a relatively fast and efficient means of cross-country transport, supplied water to industries along its length. There is, thus, an extensive hidden infrastructure distinct from but connected to the canal, which is designed to ensure the canal's successful operation and to maintain adequate water levels for all uses of the canal.

Image 2 [overleaf]: Hand-drawn map of reservoirs and channels feeding the Forth and Clyde Canal. The map was shown to the artist team by David McRoberts, Scottish Canals Operations Supervisor, and is reproduced with his kind permission. The author of the map is unknown.


N
BIRKENSHIRN RESERVOIR
GARGIL BURN
SLUICE
TOWNHEAD RESERVOIR
LOCK 14 FOOTBRIDGE
KILSYTH
BONNYBRIDGE CULVERT
WYNDFORD BR.
CRAIGMARLOCH BRIDGE
AUCHINSTARRY BRIDGE
TWECHAR BRIDGE
TOWNHEAD PIPING
RIVER KELVIN
HILLHEAD BR.
SMIRYA FEEDER
KIRKINTILLOCH AQD.
BOARD BURN
HUNGRYSIDE BRIDGE
CADDER BRIDGE
POSSIL LOCH
GLASGOW RD CULVERT
LENZIE FEEDER
KIRKINTILLOCH
SLUICE
JOHNSTON LOCH
BONNYBRIDGE
BISHOPLOCH
WOODEND LOCH
LOCHEND LOCH
BLACK LOCH
STRATHCLYDE REGIONAL COUNCIL PIPING
COATBRIDGE
HEATHERYKNOWE RLWY PIPING
BRIDGE No 24
RLWY SWING BRIDGE
MID WHARF BR.
WOODSIDE PIPING
MARYHILL RD. AQDT. & STOCKINGFIELD AQDT.
STOCKINGFIELD JUNCTION
KILSYTH, BONNYBRIDGE & DISTRICT WATER BOARD
KILLIN PIPING
MARYHILL BRIDGE
OLD BASIN BR.
FOSSIL RD. AQDT.
SCOTTISH BROM INST.
PINKSTON BASIN
LOCKS 21-25 & MARYHILL FT. BR.
LAMBHILL BR.
CLOBBERHILL PIPING
WESTERTON FOOTBRIDGE
WESTERTON BRIDGE
TEMPLE BRIDGE
DALMUIR PIPING
FARM BRIDGE
CLYDEBANK
RIVER CLYDE
BOWLING
Locks 39 & 40
Bowling Rly Bridge
Bowling Bridge
Lock 38
FERRYDYKE BR.
LOCK 37
ERSKINE FERRY BRIDGE
KILBOWIE PIPING
THE MALL FOOT BRIDGE
ARGYLL RD. CULVERT
LINNVALE BRIDGE
DUNTREATH AVE. PIPING
GARSCADDEN BRIDGE
BARD AVE. BRIDGE
LOCK 33
LOCK 34
LOCK 35
LOCK 28
LOCK 29
LOCK 30
LOCK 27 & 26
TEMPLE AQUEDUCT
CLEVEDEN RD. CULVERT
KELVIN AQUEDUCT
DRUMPELLIER PIPING
CUILHILL
BLAIR BRIDGE
CAIRNHILL
BRIDSON STEEL CORP. GARTCOSH
GARTHERRIE BRANCH (UNBILLED)
MONKLAND DISTRICT COUNCIL PIPING
LOWER FASKINE BR.
UPPER FASKINE BR.
CRICKET GROUND BR.
WOODHALL SLUICE
N. CALDER WATER
DANIEL BURN
HILLEND RESERVOIR
LILLY LOCH
INVERHOUSE DISTILLERS
FALKIRK
LOCK 17
LOCK 18
LOCK 19
LOCK 20
CASTLECARY PIPING
CASTLECARY BRIDGE
BRITISH STEEL CHEMICALS
LOCKS 7 TO 16 & LOCK 16 BR.
LOCK 6
LOCK 5
LOCK 4
GLYNNBED FOUNDRIES
BRITISH ALUMINIUM CO.
CAMELON PIPING
CAMELON RLWY. BR.
MERERS BRIDGE
BAINSFORD PIPING
LOCK 4 PIPING
ORCHARD HALL RLWY. BR.
INFILLED
RIVER CARRON
GRANGEMOUTH
FORTH & CLYDE AND MONKLAND CANALS
(NOT TO SCALE)

Townhead Reservoir

Townhead Reservoir, east of Kilsyth between Colzium Estate and the village of Banton and north of the summit level of the canal, is the major water supply to the Forth and Clyde Canal.

Image 3: The Townhead Reservoir as mapped by Ordnance Survey (OS) in the mid-nineteenth century (OS First Edition 1:2,250 Stirling [Kilsyth] map sheet 29.5; surveyed 1859, published 1865). Outflow to the canal is via the two channels to the south of the reservoir. Inflow is from the west from the Garrel Burn, via a lade flowing into the north-western corner of the reservoir, and from the north-east via Banton Burn. Reproduced by permission of the National Library of Scotland.

As the annotation on the OS First Edition twenty-five-inch mapping indicates, the reservoir was constructed on the site of the Battle of Kilsyth, fought on 15 August, 1645, between the Covenanters, led by General Baillie, and the Royalists, under the command of the Marquis of Montrose. The Covenanters were soundly defeated and many fled south, in the direction of the future canal, to escape the Royalists. Some of those fleeing Covenanters floundered and drowned

in the Dullatur Bog, about a kilometre from the battlefield. Their bodies, at least one still mounted on his horse, were reportedly discovered by the navvies as they dug the canal through the bog in the early 1770s.[60]

Work on the dam walls to create Townhead Reservoir was started by late 1771 (Image 4). Jean Lindsay tells us that the reservoir was planned 'to cover 70 acres and furnish 3,000 lockfuls of water. It had been filled by August 1773 and by 1786 it was providing the canal with 2,245 lockfuls of water annually'.[61] Probably few of us have ever thought of 'lockfuls' of water as a unit of water storage, but the term highlights the large volumes of water needed to maintain the canal's water level. Indeed, the survival and millennial re-opening of the canal have been ensured by the ongoing supply of water from the Townhead Reservoir.

Image 4: The wall that was built in the early 1770s to create Townhead Reservoir. The 'normal' outflow to keep the canal topped up flows through the reservoir wall, controlled by a sluice at the nearer end of the walkway. This outflow water, issuing from the base of the wall, can be seen at centre left.

The reservoir has two outflow channels (Image 3) that combine, split again and re-combine, eventually leading to a lade delivering water to the canal. Mid-nineteenth-century OS maps show that the canal feeder channel is surrounded by multiple industries that depended on the canal. In a pattern repeated elsewhere along the canal (for example, in the Cadder-Lambhill area), mineral railways carried coal, ironstone and limestone from mines around Townhead

Reservoir to the canal to be shipped to the east and west. The remains of the embankment of a mineral railway that reached the canal by crossing the Dullatur Bog on an elevated tramway are still obvious near the Craigmarloch Stables. Townhead Paper Mill, just four hundred metres south of the reservoir, used the water from the feeder channel in its manufacturing process, both in making the paper and evidently to drive a water wheel to power the manufacturing. The water wheel is sketchily indicated on the OS First edition 1:2,500 scale mapping from around 1860. This mill was one of several that had been located along one of the channels that was dammed to form Townhead Reservoir. The Reverend Robert Rennie's late-eighteenth-century account of Kilsyth Parish in the *Old Statistical Account* notes that 'In the east barony [of Kilsyth] there is Shaw-end burn; on which there is a threshing miln [mill] near its source [above the reservoir], and a lint and buffing, a barley, a corn, and a snuff miln farther down, and below the great reservoir'.[62] This latter must have been just upstream of the paper mill.

The water management around the feeder lade is quite complex. About six hundred metres before the feeder lade enters the canal, the feeder channel splits into two, with one branch controlled by a sluice and continuing on to supply the canal as the feeder lade, and the second branch of the split taking unwanted flow to the River Kelvin some distance downstream (Image 5). The feeder lade has to cross the River Kelvin on an aqueduct to reach the canal. Immediately adjacent to the feeder lade's inflow to the canal is an overflow from the canal, to return excess water to the Kelvin. Thus, after leaving Townhead Reservoir, water can flow through several sluices into various lades, across the Kelvin in an aqueduct, into the canal and then immediately back into the River Kelvin if water levels are too high in the canal.

Image 5: The supply feeder channel, flowing towards the viewer, where it splits at the sluice (centre right). One channel flows off to the right through the sluice, becoming the canal feeder lade proper. Any water excluded by the sluice flows to the left (behind the gate) to continue on to the River Kelvin some distance downstream.

Birkenburn Reservoir

The water in Townhead Reservoir comes from high in the Kilsyth Hills, via the Garrel and Banton Burns. The Garrel Burn is fed by another major water storage facility, Birkenburn Reservoir (Image 6), which was built in 1830 to maintain the flow in the Garrel and hence into Townhead Reservoir. Water in the Garrel was diverted by a sluice into a mill pond (Images 7, 8 and 9) and then into the lade that flows into the northwest corner of Townhead Reservoir (Image 3).

Image 6: The Birkenburn Reservoir high in the Kilsyth Hills above Queenzieburn, as mapped across adjacent sheets of OS First Edition mapping (OS First Edition 1:2,250 Stirling [Kilsyth] map sheets 28.2 and 28.3; surveyed 1859, published 1865). Birken Burn flows off to the east and soon turns south to join the Garrel Burn, which is eventually partly diverted into the lade to Townhead Reservoir (Image 5). At the extreme right on this map extract is 'Lunch Knowe' and a well. Perhaps this is the reservoir builders' lunch spot. The 'Forth and Clyde Canal Co.' annotation of the reservoir was valid for only a few years after the mapping because the Caledonian Railway bought the Forth and Clyde Canal in 1867. Reproduced by permission of the National Library of Scotland.

Image 7: The Garrel Burn flows north to south on the left-hand side of the map extract, with an eastward-directed off-take above the 'waterfall' (Image 8). (OS First Edition 1:2,250 Stirling [Kilsyth] map sheets 28.8 and 28.12; surveyed 1859, published 1865) Reproduced by permission of the National Library of Scotland.

The water-diversion weir on the Garrel Burn is a beautifully engineered structure, sitting at the top of a high waterfall (Image 8). This arrangement – a diversion weir sitting at the top of a steep drop in the river channel – is very common

for Scotland's water mills because it means that the mill itself could be sited so as to bring the water from the diversion weir to the top of the mill wheel, which is the most efficient way of operating a mill. The water diverted from the Garrel flowed into a mill dam, which had two outlets controlled by sluices. One sluice allowed water to flow directly into the lade leading to Townhead Reservoir, and the second sluice took water under Tak-Ma-Doon Road to another small mill dam from where it powered a corn mill and attached saw mill (Image 7). The spent water from these mills then returned to the lade leading to the reservoir. So, the Garrel Burn water from Townhead Reservoir that powered the Townhead Paper Mill had also driven a corn mill and a saw mill before it reached the reservoir. Both mill dams at the Garrel Mill are now infilled.

Image 8: At centre left looking south: the sluice that controls water diverted from Garrel Burn into the lade flowing away from the viewer. Garrel Burn can be glimpsed at right after it has plunged over the high waterfall, which is out of view at right.

Image 9: The large mill dam and sluice (to the right of the building at the far end of the water body).[63]

The lade to Townhead Reservoir can be followed along a pleasant path from Tak-Ma-Doon Road, at the foot of the hill below Garrel Mill, to the reservoir, signposted on Tak-Ma-Doon Road as 'Banton Loch'. The flow down the lade is steady and constant, reminding the walker that this is the flow that is needed to keep the water topped up in the Forth and Clyde Canal.

Image 10: The canal feeder lade.

Image 11: A boundary stone marker beside the lade to Townhead Reservoir, with the initials FCN, standing for Forth and Clyde Navigation, the original name for the canal. The numerals on top of the marker are obscured but appear to read 1806, although it has been suggested to the author that the date is 1823.[64]

Bishop, Johnston, Lochend and Woodend Lochs

These four lochs, the South Lochs (Image 12), bring home very clearly the complex web of interconnected water management systems that are needed to maintain the water levels in the Forth and Clyde Canal. The hand-drawn map (Image 2) nicely illustrates that complex network. The South Lochs are a long way from the canal but close to the Monkland Canal, construction of which started in 1770. The Monkland and the Forth and Clyde were joined near

Port Dundas in 1793 and so these two waterways became interdependent, with water supplies to one supporting the other. The proximity of the South Lochs to the Monkland might be taken to mean that these four lochs drained to the Monkland, but in fact a plan drawn in 1790 to mark the completion of the canal confirms conclusively that these four lochs supplied water directly to the Forth and Clyde Canal (Image 12). This supply was via the Bothlin Burn with some of the burn's flow being diverted by a sluice at Craigenbay to a feeder channel that soon crosses the Bothlin Burn via an aqueduct and strikes northwards away from the burn.[65] It soon passes underground and flows into the Forth and Clyde Canal adjacent to the Seagull Trust building, Southbank Marina, Kirkintilloch.

Image 12: An extract from Robert Whitworth's 1790 plan that coincides with the completion of the Forth and Clyde Canal ('Great Canal'). This extract confirms that the four South Lochs were part of the original water feeder system for the Forth and Clyde Canal, and not for the Monkland. Reproduced by permission of the National Library of Scotland.

Indeed, the four South Lochs also figured in a scheme for a Forth and Clyde Canal that was never constructed, namely,

the scheme proposed by Robert Mackell and James Watt in 1767 (Image 13).[8] Mackell and Watt proposed two alternative routes west of near Castlecary, with the more southerly passing 'through a country filled with pit-coal, which might afford a considerable trade to the canal'.[66] They also noted that 'the Bishop Loch ... may be used as a reservoir', and the Garnqueen and Johnson Lochs would also 'afford sufficient supplies in summer without depriving the [water] mills of any of their water'. This southern track was more expensive than their proposed northern track, and, in any event, as we have seen, Smeaton's scheme was the one that was built.

Image 13: Portion of the possible southern route for the Forth and Clyde canal as proposed by Mackell and Watt in 1767. Reproduced by permission of the National Library of Scotland.

It perhaps seems somewhat counter-intuitive that the South Lochs would supply water to the canal at Kirkintilloch, given the distance of Kirkintilloch from the lochs (Image 12). One of the challenges in understanding the role of these lochs in supplying water to one or both canals is in assessing the direction(s) in which water flows into or out

of the South Lochs. Outflow from the northern end of Bishop Loch is traceable on mid-nineteenth-century OS First Edition twenty-five-inch maps to Bothlin Burn and on to Kirkintilloch. These same maps suggest but do not demonstrate, since the relevant map in the National Library of Scotland online collection does not have colouring that indicates a water-filled drain, that water from Woodend Loch likewise flows to Bothlin Burn. Field inspection confirms that water flows northward from Lochend Loch to Woodend Loch, with this flow to Woodend Loch controlled by a sluice that is shown on OS First Edition maps (and is still present on that channel connecting Lochend and Woodend Lochs). Finally, three drains are shown flowing into or leaving Johnston Loch. One of these drains, at the southwestern corner of the loch, connects to the outflow from Bishop Loch and on to Bothlin Burn. Flow into the drain in the south-eastern corner of Johnston Loch is controlled by a sluice at the loch shore, suggesting that this channel is likewise an outflow to Bothlin Burn. A sluice would probably not be used to control inflow in this situation because closing that sluice would cause flooding upstream and eventual overtopping of the sluice.

Image 14: View of the area to the north-east of Glasgow showing the South Lochs and highlighting their distance from their inflow to the Forth and Clyde Canal, which they feed adjacent to the Southbank Marina at Kirkintilloch. The South Lochs are close to the Monkland Canal, parts of which are now covered by the M8 motorway to the north and east of Glasgow, but their outflow to replenish the canal travelled north to Kirkintilloch.

The bathymetry of the larger reservoirs, including Townhead Reservoir, is well known from hydrographic surveys held by Scottish Canals. The bathymetry of the smaller reservoirs, including the South Lochs, was unknown and a small team from the University of Glasgow undertook hydrographic surveys of these four lochs for the *THEN/NOW* project.[67]

The surveys showed that the bathymetry of the South Lochs is relatively simple and that these lochs are in effect shallow bowls with local deeper spots (Image 13). The lochs are presumably kettle holes from the last glacial period (the last 'Ice Age'). Kettle holes are depressions left behind after the final melting of a large block of ice that is the size of the resultant loch. The block of ice prevents sediment and other deposits accumulating in that locality, leaving the depression when the ice finally melts away.

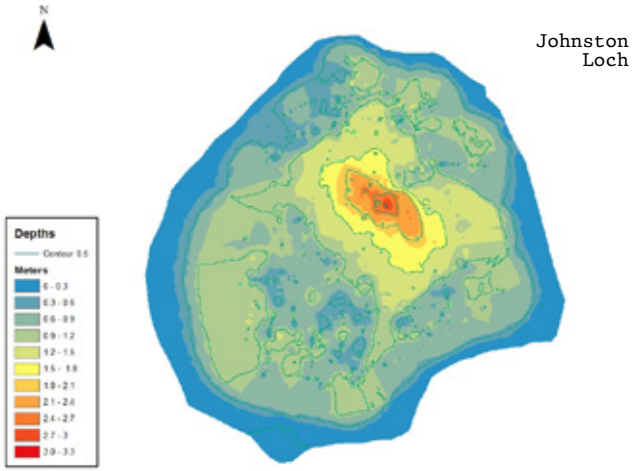


Image 15: The bathymetry of Johnston Loch based on echo sounder and differential GPS survey by Kenny Roberts and Paul Bishop of the School of Geographical and Earth Sciences, University of Glasgow. Note that the loch floor is effectively a shallow dish with a narrow deeper section a little to the northeast of the centre of the loch. Members of the Gartcosh Angling Club, based on the loch, described a deep trough cutting across the loch floor and the section of deeper loch floor shown in the echo-sounder survey must be what they described, although it is not as deep as their description suggested.

Kilmannan Reservoir

Kilmannan Reservoir dams a tributary of the Allander Water in the Kilpatrick Hills in West Dunbartonshire. The dam is about four miles north west of Milngavie, and so quite some distance from the Forth and Clyde Canal. Yet Kilmannan Reservoir is listed on a plan of the canal for the London Midland and Scottish Railway Company, which owned the canal when the plan was prepared. The Allander is a tributary of the Kelvin, and therein lies the reason for Kilmannan Reservoir being listed among

reservoirs of the Forth and Clyde Canal. In an 1821 court case before Lord Pitmilly in the Court of Session, a group called the Proprietors of Kelvin Mills brought an action against the Incorporation of Bakers in Glasgow, also proprietors of mills on the Kelvin. The Proprietors of Kelvin Mills wanted the court to rule that the Incorporation of Bakers did not have exclusive right to regulate the supply of water from the Kilmannan Reservoir. The court documents note that the reservoir had been built by the Forth and Clyde Canal Company for the mills on the Kelvin. Its purpose was to maintain the flow in the Kelvin by making up for any loss of flow resulting from the canal company's reservoirs upstream that abstracted water from the Kelvin to supply the canal. The court found 'that the supply must be regulated by the majority of all the mill proprietors, or by a committee appointed by them', in effect finding in favour of the Proprietors of Kelvin Mills.[68] The court noted that Kilmannan Reservoir had been formed by the canal shareholders, meaning that Kilmannan Reservoir was part of the deal when the canal was bought by the railway company. So, here is a Forth and Clyde Canal reservoir that has nothing to do with water supply to the canal, but is dedicated to maintaining supply to the water mills on the Kelvin.

Conclusion

The Forth and Clyde Canal is one of Scotland's and Britain's engineering masterpieces of the second half of the eighteenth century. Several authors[69] have noted how its genesis created a tension between Scotland's two largest cities, with Glasgow wanting a smaller canal and Edinburgh aspiring to a larger canal that made a grander civic statement. This tension was routinely reported in the contemporary press of 1767.[70] The

Forth and Clyde Canal's final completion, along with the Union Canal, united the cities, enabling wheat and other merchandise to flow westwards to the rapidly growing city of Glasgow and coal and industrial products to flow in the reverse direction to Edinburgh. The canal was thus a vital part of the eighteenth-century development of Scotland. What is often overlooked is that the construction and maintenance of the canal also required the development of a complex system of reservoirs and connecting lades supplying water to the reservoirs and then to the canal. The canal snaking across the country can be thought of as a fine thread connecting Scotland's two largest cities, but what should not be forgotten is that the thread is critically dependent on the web of reservoirs and lades attached to it, to its north and south. And that web of infrastructure not only supplied water to the canal but also to industries on and near the canal, including mill owners on the Kelvin.

Acknowledgements

I thank Kenny Roberts for his always cheerful leading of the hydrographic surveys of the South Lochs, and Paul Carter of Banton for sharing his knowledge of the history of the Forth and Clyde and for drawing my attention to Kilmannan Reservoir. John Gordon of Kilsyth likewise provided invaluable information on the histories of the Garrel Mill and the Townhead Paper Mill. I thank Drumpellier Country Park (Lochend Loch) and Gartcosh Angling Club (Johnston Loch) for permissions to survey their respective lochs. The National Library of Scotland kindly gave permission to use the various maps and plans in this chapter, for which I am grateful. And I thank the editors for their invitation to write this piece.

AUDIENCE-PARTICIPANTS: REFLECTIONS

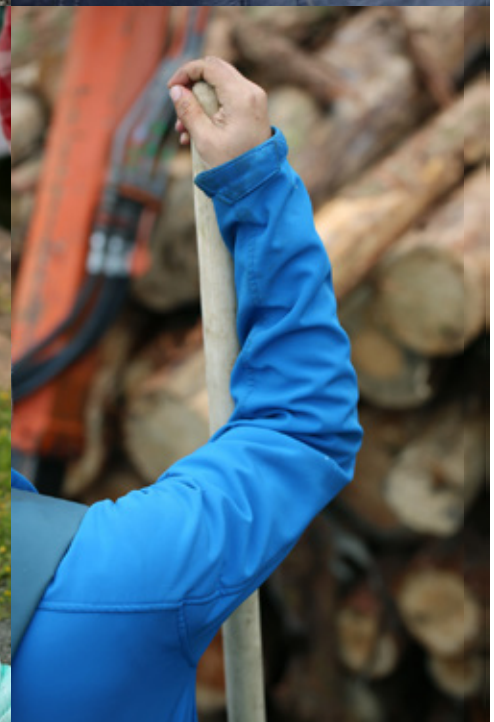
Wendy Kirkup and Simon Murray
John Main
Karen Lury and Edith Niel
Luke and Sam Turner with Matt Benians

REVISITING THEN/NOW
WENDY KIRKUP AND SIMON MURRAY

Artist Wendy Kirkup and her partner Simon Murray, a senior lecturer in contemporary performance, were enthusiastic participants in the *Barge Pull* that was part of the *THEN/NOW* project. Wendy and Simon joined the 'cyclists and bicycles' and 'adult human' pulling teams, while their golden labrador dog, Tally, also attempted, successfully, to pull the barge. Wendy and Simon reflect on their participation in the *Barge Pull* and on the *THEN/NOW* artworks, which they revisited over one year after that event. Wendy and Simon wrote this essay in October 2016.

Barge Pull: 11 July 2015: Forth and Clyde Canal, Glasgow: By the Whisky Bond Warehouse

An arrival by bike with dog. A sunny Saturday afternoon dissolving later into rain. A horse (Clydesdale Spud from Port William). A barge laden with tree trunks. A bargee. Bicycles. Dogs. Children. Kayaks. Adults of disparate ages. Ropes. A chalking of marks. Leather halter, horse hair and steel. Clipboards. Measuring and measurements. Rust. Ruin. Tower block. A warehouse. Reflection. A multiplicity of blue: barge engine house, mooring rope, bargee's jacket, Nick Millar's shirt, jeans, tape measure reel. Effort. Laughter. Pulling. Physics and art at work. An event unfolding. An urgent splashing of paddles. Children mooching, playing. Cyclists straining but supported upright. Sounds of traffic. Casual conversations. More laughter. A dog harnessed to the barge, urged on by treats. A gentle and uncertain chaos. Dispersal. A quietness. A going home.



20 October 2016: Forth and Clyde Canal, Glasgow: by the Whisky Bond Warehouse

Sixteen months later. We return with dog. By car. Late morning. Less blues, more autumn browns and yellows. But a last flash of cerulean as a kingfisher swoops upwards through the reeds ahead. Now seven ingots horizontally set in stone on the towpath marking barge pulls. Seven ingots signing human and non-human energies at work. Cast-iron ingots, now resembling 'plaques' and now constituting a permanent art work, *Displacement*. But, in addition, engravings on two stones set into the canal bank, as part of the canal wall, and facing each other. In exchange. In conversation across the canal. Stillness and quiet save for traffic sounds and construction drone. Beyond canal and towpath another (just converted) building signs itself as the new home for the National Theatre of Scotland – a 'building without walls', it announces. And The Whisky Bond,[71] reflected unnervingly but perfectly in still canal waters. A present quietness. A going home (again).

Now, we stand on the canal bank looking over at the inscription, ⊥HƎN – carved into the stone on the other side. Mirrored, and appearing to float in the water, is its reflection, THEN. Further semblances and inversions occur with the carved inscription NOM – below our feet, and, although we can't see it, we know the word NOW will be hovering in the fluent surface of the water much like THEN. Both reflections, legible now as words, but whose meaning is somehow made slippery and uncertain. Linguistically, THEN and NOW are deictical words, that is to say, ones which indicate or point to things or contexts beyond themselves, without which their meaning cannot be fully understood. Where then, we wondered, do THEN and NOW take us? Where might our thoughts lead? What are these things or contexts that they gesture towards?

THEN and NOW, NOW and THEN, often envisaged as two separate points in space and time, two points on a forward trajectory. But we worry about thinking of time in straight lines, flowing in one direction (or its reverse), like a river or, more imperceptibly, a canal. The configuration of the two engraved stones positioned opposite each other across the river bank, solid to fluid, reversed, inverted, echoed, and overturned, complicates this linear view of time. Can we not feel the past as an eruption – or a gentle and secretive seeping – within the present? As duration? Of ghosting? Very difficult to choose our tenses here.


ROCKVILLA


Now, we remember *then* – the then of 11 July 2015. We (there are many of us) are on the banks of the spur canal to Port Dundas, leading almost to the heart of the city centre. As we mingle, chat lightly, anticipate and then witness the pulling energies of invited participants, we are engaged in an event which signs and contextualises two key features of contemporary art practices and the creative cultural economy. Here the materiality of water, stone and iron is entwined with the human, the animal, and the performances we are playing out and enacting. *THEN/NOW* neatly and pleasingly blending different strata of performance: we perform the (Herculean) task of pulling the barge as kayak paddlers, animals, cyclists and biped tuggers of steel and wood. We also perform the excitements, pleasures, distractions and disappointments of spectators investing competitively in which driving force can propel the barge furthest. Art and physics playfully at work. We perform pleasure and conviviality in a post-industrial landscape on a Glasgow canal bank during the second decade of the twenty-first century. We are hugely engaged and invested in delightfully 'pointless' acts of folly. We take and give pleasure in human and non-human acts of heroic endeavour. Child, horse and dog labour legitimated by art and, in the case of the canine, dog treats.

Now, we are standing in the quiet of the canal bank looking at the carved inscriptions and their mirrored words, recalling the noise and excitement of the barge-pulling event. We can almost feel again the ephemerality of the weather those sixteen months ago as the sun breaks through cloud and is quickly hidden once more. We can hear the clatter of the gathered crowd cheering on the variety of engines used to pull the wood-laden barge through canal waters. We are absurdly, playfully and delightedly engaged in this enterprise.

We feel relief that the dog didn't suffer any strains and remember our guilt at letting her do it. One day's events marked through by the other.

Now, we remember the flurry of effort and pleasure of these various engines pulling their load. We recall the dusty chalkings on the ground indicating just how far the barge had been hauled. Powdery lines smudged and diffused by the soles of shoes and eddies of wind, now replaced by seven ingots inset in the stone edges of the canal towpath. From the ephemerality of chalky dust to solid mass, a cast in iron, now also developing a patina of rust that echoes the colour of leaves from surrounding trees which fall to the ground in the autumn morning. We reflect on chalk and iron: on their interrelationships, of materials and processes and significations. How does one differ from the other and how does one become the other? The gestures of the first mark events as they unfold, those of the other invite acts of memory, that is to say, they memorialise. Chalked inscriptions trace the gesture of its maker directly in time. Iron ingots are formed of molten metal taking the shape of, and solidifying into, moulds made though several stages of inversions and reversals during production. Like that other mnemonic object, the analogue photograph, the mould takes an impression of a worldly event, and from a negative form, creates new and transformed versions of that moment. It is significant that the processes which formed these ingots send our thoughts towards the technologies associated with an industrial past, of chemically based photography and of heavy engineering. They take us through a series of gestures, from the present to the deeper histories of the canal. And as we focus on these materials and how they are used, our attention is drawn to the makers themselves and the power relations at play between their tools and

spaces of production, both historic and contemporary. Memorial signs, such as the blue plaque scheme which runs throughout the UK, commemorate the links between geographical locations and the homes or work places of significant historical figures. The ingots however – the residue of the *Displacement* project – are silent about any specific individuals who may have been associated historically with the canal. Significantly our research reveals that, on the one hand, the heritage organisations which award blue plaques require that the person commemorated be dead for at least twenty years, but on the other, Google reveals that our 'personalised' blue plaque can be purchased for as little at £25.99.

The significance of these *THEN/NOW* ingots on the Forth and Clyde Canal seem to deflect us from individual achievement and celebration towards something more material and physical, of effort and vigour, of the action and energy of the engine. As we stand there in the silence of the late morning, in the sun, watching the leaves float into the canal, we can feel the slow pulse of the water and remember the frenetic splashing of paddles as the kayakists accelerated to propel the laden barge, or the slow plodding steps of Spud compared to the frenzy of Tally the labrador as she strained and leapt for the biscuit tempting her to pull. And the fizz of the children as they madly peddled their bikes to the sounds of cars swooshing below them under the viaduct, the slow reverberating hum of machinery now throbbing the air, and NOW the brittle cracking of drying leaves. And it is this palimpsest of sounds, materials and textures which draws us to the dynamic materiality of things and stuff.

And then we stepped back – took some distance – to become more aware of the Forth and Clyde Canal's 226-year history; a history that speaks of the hopes, ambitions, follies, regrets and tribulations of industrial development, decline and neglect. Of decay, closures, ruination and – much later – 'cultural' regeneration deemed appropriate for a de-industrialised age. Beyond the canal banks, The Whisky Bond, reinvented as a home for Glasgow sculptors and 'a growing community of thinkers designer, makers and doers'.[72] No 'dark satanic mill', this, it was originally built as a bonded warehouse for Highland Distilleries as recently as 1957. Where does the company bond its whisky now we wonder? A little further along the canal towards Speirs Wharf, the National Theatre of Scotland's new 'theatre without walls' has found new walls in a re-vamped wholesale retail 'Cash and Carry' building. Momentarily, we ponder the makings of a contradicton here between rhetoric and site. Significantly, both these hubs of creative enterprise and the cultural economy are housed in post-second-world-war buildings and not in the doomed relics of Victorian or Edwardian industrial Scotland. It is not to disparage the activities of the new cultural tenants of these buildings, nor the *THEN/NOW* project itself (financed largely by Creative Scotland and the Heritage Lottery Fund, via Scottish Canals and Scottish Waterways Trust), to remark that together – spatially, temporally, materially and performatively – they spoke *then* and speak now of a dominant model of cultural production – the vernacular of 'creative enterprise' and 'cultural industries' – and the gaps and spaces within these which artists can invent, discover and claim their own.

THE IRON AGE
JOHN MAIN

John Main was among the audience who witnessed the live, public iron founding on the site of the former Victoria Foundry. John describes his experience of the event and reflects on the role that iron founding plays in his personal history and in Scotland's industrial heritage. John wrote this in October 2016.

I was brought up in and around Falkirk in the 1950s and 60s. Falkirk's iron industry had grown up following the establishment of Carron Iron Works in 1759. With local ironstone and coal, together with fire clay for the brick-lined furnaces, iron making and the production of cast-iron goods dominated Falkirk's industries until the second half of the twentieth century. It was unsurprising, then, that I had family members whose working lives were spent in and around the foundries. My grandparents on my mother's side had both been tablet enamellers at Falkirk Foundry in the early 1900s. I have a photograph of them at work together, brushing liquid enamel onto signs that advertise Cadbury's chocolate. I had uncles who were foundry pattern-makers and moulders.[73] During World War Two, my mother's older sisters worked in munitions production in the local foundries. Later my mother worked in the offices of Robert Taylor's Muirhall Foundry, then at Smith and Wellstood's works in Bonnybridge. My father worked as a cost estimator in Falkirk Foundry (by then, part of Allied Iron Founders) and later at Carron Company. We lived on the braes that rise to the south of Falkirk and from there, at night, you could see the Carron Company's big illuminated sign glowing red among the lights of the town, confident and secure.

But by the late 1960s many of the old iron works were lying derelict. I recall this whole period as a time of abandonment: shutting up shop, closing down, scraping away the legacy of the previous century. When my family moved into a newly built council house in Camelon, our windows looked across a railway track onto the remains of the old Sunnyside Iron Works, then undergoing demolition. Other factories, similarly in ruin, lay nearby. Aware that something was vanishing before our eyes, I went about exploring, re-entering the abandoned spaces of these old works: the

dusty moulding floors and pattern-maker's workshops, the draughtsmen's offices and the lofty sheds that housed the furnaces, staring at the decaying grandeur, the gigantic rusted squalor, picking up souvenirs along the way. In a few years it was all gone, paved over and landscaped: houses where the furnaces once stood. The shift was ended and the fires were out.

So, in the remains of the old Victoria Foundry in Glasgow, in a place once shaped and defined by the great age of industry, we are offered the chance to see a small, ceremonial re-enactment of a process crucial to our heritage: the pouring and moulding of iron. The results will celebrate the enduring role of another monument to Scotland's industrial past, the Forth and Clyde Canal. I had to see this.

The furnace, a rusty drum mounted on a low platform of steel beams, had been going for some time when we arrived and it looked like the pour wasn't far off. The foundry team, in heavy boots and leather aprons, were getting the moulds prepared and looked tense with anticipation. The heat could be felt even from twenty yards or so, and the air had a tang, not dirty or sulphurous for there was very little smoke, but something that made your skin prickle and left you uneasy. Waves of heat rippled the air above the furnace, which spurted shivering jets of flame, almost colourless in the evening light, occasionally blowing out sparks and black smuts as charcoal and scrap iron were flung into its throat. There was a steady, low roar as if some intense and furious violence was happening just out of sight. I make a quick sketch of the scene in an attempt to fix something of the moment.

I thought about what it would have been like, being close to a big furnace from the old days, the kind that might once have stood on this spot, waiting to release tons of molten material rather than the hundredweights contained in our belching pot. Even this had a sense of frightening power, a sense of something dangerously alive and threatening.

I thought about the Iron Age bloomery I had found washed out of the dunes in North Uist earlier that year, lumps of heavy slag and broken hammer-stones scattered nearby. I thought about the men who had crouched beside the little cone of stones that contained their fire. I wondered if these ancient iron workers had felt this tension, waiting for the transformation of ore to living iron? I wondered if they had leather aprons like the men and women who were working here tonight.

Now the foundry team seemed to be alert to the state of the iron, listening to the furnace and watching the colour of the load, its ripeness, its maturity. They took up their places according to their roles: overseer, furnace-tapper, ladle-bearers;[74] all waiting for an exact moment of readiness. The furnace was quiet now. The position of the ladle below the spout was adjusted, considered, adjusted again. At a signal from the overseer, the tapper began to prod the plug[75] at the base of the furnace: light, careful blows at first, then determined, heavy strikes that punctuated the silence.

Suddenly, the iron rushes out, a great gout at first, glowing with a light so intense that the watchers gasp, an intake of breath that brings the smell and taste of the iron: almost of the light itself. The deep ladle fills to the brim, the meniscus wobbling, as if this globule was living, breathing, ready to run purposefully over the edge before someone swipes a

bar across, levelling the load and scattering bright drops. The flow from the furnace is stemmed as the bearers take up the long handles and hurry to the first of the moulds. Instinctively I step back as the ladle is tipped.

Molten iron splashes on the bat boards and siding of the moulding boxes. They instantly catch fire, burning with a slow, bluish flame, less intense than the burning iron, which seethes and quivers as it settles in the moulds. The little fires are quenched and the poured iron begins to darken, like a vivid sunset fading orange to red, to purple, to deep blue. Smoking crusts float on the surface of the casts then fizzle out.

The furnace is tapped again, then again, and the moulds filled steadily till there is no more iron. At last the foundry team relaxes, pulling off gloves and face masks. We watch the casts cooling while someone pulls on a lever beneath the furnace. Smoldering ash and clinker fall to the ground and are raked clear. It's all over. The casts will be turned out the next day, so we wander off down the lane beneath the canal embankment and into the clear summer evening. I'm still exploring.

THEN/NOW AND EPILOGUE
KAREN LURY AND EDITH NIEL

Karen Lury and Edith Niel took part in the *Barge Pull* in July 2015. Karen later visited the *THEN/NOW* artworks at a public launch event in January 2016. Karen is a Professor of Film and Television Studies at the University of Glasgow, and a close friend of Minty and Nick. Edith (Edie) was twelve years old at the time of *Barge Pull*. Karen and Edie wrote this in December 2016. Edie wrote the epilogue in August 2020.

'I dont think it makes no differents where you start the telling of a thing.'[76]

Painting of *Barge Pull*, Edith Niel

Water.
From the ages of one to fifteen I grew up by a stream in a valley – the stream is Sarre Penn (a tributary of the river Stour near Canterbury in Kent.)[77] When I was fifteen, I read and didn't really understand a novel by Russell Hoban called *Riddley Walker*. I was older than Riddley then, and now, since Riddley tells us that he 'come 12' when the novel begins. Now the novel is published with a forward by Will Self and an explanatory endnote from Hoban. In 1980, I read it then, raw and un-contextualised. Written in half-English or in a kind of prescient not-yet-invented text speak, I wasn't sure if this was a future in ruins or a past imagined. I still

don't think I really understand what happens. I recognised the territory however: the events take place near a River 'Sour' by 'Cambry'. There was a map. I had friends who lived nearby in the novel's 'Horny Boy' (Herne Bay) and 'Widdersbel' (Whitstable).

'You never know where it begun realy.'

Edie, city kid.
My youngest daughter Edie (Edith, Ed, Eddy?) was the only one persuadable enough to come and take part in the barge pull. Just young enough to be amused by the being in it, willing enough to participate in 'the just what else is there to do?' of a weekend. She doesn't know streams, just rivers (the Kelvin, the Clyde) that she travels under or over and has glimpsed other urban waterways (canals - mostly out of sight and out of reach). She doesn't own or know this canal in the same way I owned that small stretch of Sarre Pen – just below the bridge where sticklebacks could be caught beside the cropped field with the pillbox stone faced crouching on the hill.[78]

'No moren you know where you begun your oan self.'

Body memory.
The country child is not fucking *Swallows and Amazons* or the *Famous Five*. It is mostly boredom, cold, swish of boots through grass, stubble, the suck of heavy clay. 'Go outside and play.' What? Poking things, pulling things, building and destroying, lighting fires, soaking things, snotty noses and wet trousers.

The city child has a different focus, looking down more than up, watching their feet, watching out for traffic, for the rain,

for puddles larger than they seem. Animals are in zoos, or pets, or dangerous. Weather is outside.
In the country the cold draws on and long.
In the city, warmth flickers as you move between shops, in and out of cars and cabs.
I walk more slowly than anyone else I know. I never had any place in particular to go.

'You myt know the place and day and time of day when you ben bearth.'

Origin or meaning.
Russell Hoban later explained that *Riddley* depicts 'a desolate England thousands of years after the destruction of civilization in a nuclear war; people would be living at an Iron Age level of technology and such government as there was would make its policies known through itinerant puppeteers.'

So at the end of the artwork, the events, the labour, you get to see what it is.

- ◊ It is measured: for instance, six cyclists, fifteen children, a dog and a heavy horse.
- ◊ Scaled: scale models of reservoirs, that have been traced, then carved in heavy stone, named, mapped and placed.
- ◊ Made legible: mirror words, on the side of the canal, graffiti over and in the water, thennehtwonnow, backwards, reflected, unreadableelbadaer.

I think I get it. In the 1970s there was a public information film about the dangers of water (if you are over fifty and British you'll remember it.) *Lonely Water* was made in 1973 (I was eight and in the stream most weekends). In this film,

children and water are stalked by the figure of death, voiced by Donald Pleasance. Children who play, dabble and jump into (mostly) urban water drown. In my childhood then, abandoned, wasteland, man-made water was obviously risky, unclean and dangerous, to be left alone. *THEN/NOW's* challenge is to revisit water in the city and to celebrate its status as man-made, as an economy, as industry. Commemorating an exchange of power then...and now. This transformation of energy into power was at the heart of civilization and industrial revolutions. Riddley (re)calls this as finding 'the wud in the hart uv the stoan.'

It's funny how the kayaks seemed silly and the cyclists vulnerable, flailing about on flimsy boats and wheels. The adults are competitive.
Only the animals, the horse, the dog and the children are grand, stoic, excitable and pathetic. Despite general hilarity as the dog flattens herself in an attempt to reach the beef jerky and pull the barge along, together they provoke and prick at the reality of the exploitation of their labour. In Riddley's world, the children are men and the dogs are to be feared.

'That dont mean nothin tho.'

Future archaeology.
For nearly the whole time I lived there, by the stream, in that valley, we were told that one day it might be flooded, made into a reservoir. I imagined the water over the houses, over the trees, in the gullies, my big brother's bonfire-melted action men floating to the ceiling of the pillbox. I pictured future archaeologists swimming through my bedroom window. Never happened. Well, apparently it might.[79]

The little carved puddles on granite boulders don't seem like that dreamscape, but they are blueprints, tangible mapping.

'The original plan from 1974!' says the reporter, in the 2013 news item, spreading a map of my valley over the bonnet of his car. That's my house, there, under the water. Now there is Edie, standing on one of the rocks, her foot in the puddled reservoir, tapping for the wood in the heart of the stone.

The idea of future archaeologists finding and trying to work out the 'what and the how' is what I like best about *THEN/NOW*. Like the rivers, the canal and the traces, it will all become what is before and after of landscape. It's not pretty. It's indifferent.

'You stil dont know where you begun.'

Not exactly.
Then Edie paints a picture of the canal for this essay. But it doesn't look like a canal. It looks like the idea of water. Or even an idea of what the idea of water is like. Why? 'Because it was cold. Because I was so much older than the other kids and they were like, five, and didn't stop moving. They were so excited to be pulling the barge. You know...like 'waayyy' [–her hands in the air, eyes rolling–] like the water.' Did you like it? 'Yeah, well... but it was like ground you know? Real, not like glass and concrete.'

Now on Instagram, she takes pictures of the sky.

Photograph of the night sky, Glasgow, Edith Niel

Epilogue: Edith at seventeen.

At 12, i wasn't much excited to do anything. I liked drawing, i liked comics and sometimes i could stomach spending time with my family, and to me that was what 'the barge pull' was. I remember my mum waking me up, I remember being somewhat passive-aggressive, and I remember the car drive there.

My mother (Karen Lury) in her writing speaks of owning a small stream, which i never could. I don't wish to own a stream, and have no ownership over a patch of water, but i think as a Glaswegian, i own my fair share of rain.

My mother still writes in a way I can't majorly comprehend, but in all honesty, I don't know if i ever will. Maybe my mum has always secretly been too smart.

I think i am smarter now, on this type of stuff. With a new form of yearning toward art and its history, the idea of a continuing circle of knowledge, like how all stuff, feelings, objects, places can be placed into 'then/now'. But stuff is always different from each other. Sure, things can be similar, dogs to cats, tweens to children, but we are never the same. It is how both then and now can encompass all things that could make us similar. Like time and movement, it's all things that everything (people, places, things, stories, words, art) can understand and exist within, all being similar but different.

At 12 i was uncomfortable, as i think we all are then, with bodies that don't really fit, and words we don't understand, being handed to you in ways that are not the kindest. You're kinda young but not really, you're that type of young that thinks bad hair choices make you cool, disliking things makes you seem mysterious, so when i talked to my mum about the barge pull, i said it was 'fun', that is the tween way of saying 'I'm getting to that age where I don't understand little kids anymore' and 'it was cold and it was something to do'.

Now i understand a bit more. The contrast between 12 to 17 for me is a big one.

Then and now i think: the barge pull was just water, adults in water, kids in water, dogs in water. We all used this greater thing for our own artistic moment. But all groups were similar. None of us (as I recall) actually pulled the barge that far, the lines sort of blurred together between successful and unsuccessful 'barge pulling'. As the kids, we were probably more representative of the 'NOW' with hyperactive brains and sticky fingers, anxious to pull something, then being disappointed when we are too small and cannot do it. My parents pulled the barge with some amount of fury, but

didn't get that much farther than we did, the 'THEN' still showing a passion created in childhood, showing an interest in complex creativity, is what *THEN/NOW* was (or is).

As i write this i realise the intrigue of thinking about THEN, whilst noting that NOW is what has happened and, is existing, with me, as it always is. You carry your 'then', with you, to the 'now', until you need it. I see my youth in flashes of then and i am not aware of my near adult now.

I think about how long this project has lasted for Minty and Nick, spanning over five years. For me it ended the day i painted water, but was that the end for me? No? Was the barge pull the real beginning of Minty and Nick's *Then/Now* project? No. It started before then, which has lasted til now.

I think about contrast, what makes that day different to this one. At this point in time, the COVID-19 quarantine has been lifted partially, but i still find it scary to hug my friends, when then i could with comfort and ease, now i cannot. Then, I didn't consider a future at all, and i was honestly not convinced i would reach my now, but recently Nick visited me whilst creating my portfolio at the Tramway,[80] and we talked about my art in a way that made me feel important, smart and understood, like someone was getting it and now i am anxious for when I feel like my future can begin.

Then, i knew little of the world around me and ached to find out more. Now I'm growing more and more restless, somewhat tired of the hands i have been given, but i still need to know more. So I think both in the then and now, i have always been curious.

I remember the barge pull then, just being cold, with adults and kids disjointed but excited, standing in rain jackets with rope burn on our hands, water surrounding us in a way that is comfortable for a Glaswegian, with it on the ground and in the air. Now the barge pull is flashes, being cold, drinking something fizzy, seeing a dog, holding a rope, hearing my dad shout, standing, sitting, car drives, hugging Minty and Nick, the converse i wore. Then in my childish conversation with my mother, i painted a picture of water, now i look outside my window as it rains.

Then and now is a circle, and it always moves. I see now, i feel then.

SAM AND LUKE TURNER WITH MATT BENIANS

Brothers, Sam(ST) and Luke Turner(LT), visited the site of the three permanent *THEN/NOW* artworks with their dad, Matt Benians(MB), Minty Donald(MD) and Nick Millar(NM) in October 2016. This was over a year after the boys took part in the *Barge Pull* on the canal and an archaeological dig and reconstruction at the site of Victoria Foundry. As we walked around the canal-side and Applecross Street Basin, Sam and Luke interacted with the artworks, chatting about what they remembered and what they were thinking about now. Due to the nature of the conversation – Sam and Luke frequently finished one another's sentences, and often talked at the same time – unless obvious, their contribution has been jointly attributed. Sam and Luke agreed to the joint attribution.

Barge Pull

LT/ST: We had to line up in order of size. I was third in line. And we were all tugging this barge. And walking along in a line. There was a horse. We had to beat the horse!

It was quite hard but there were other people pulling it with you. I remember the logs on the barge.

If there were no logs it would be quite easy.

If you try to pull a barge with your hands, it's much easier than pulling a car.

LT/ST: We sat and watched there on the wall.

And that's where you tripped me up.

LT/ST: 'Eight adult humans' [reading ingot].

MB: They've weathered really nicely.

LT/ST: 'Fifteen children 99.92 metres in two minutes' [reading]. That's quite good.

You got it the wrong way round. The children should be up there and the adults down here.

We beat the cyclists!

Well, a lot of them fell over.

There's one [ingot] there.

'Heavy horse 59.6 metres in two minutes' [reading]. We beat the horse!

If it had been further, the adults and children might have run out of energy and the horse would have won.

It was very hard for the horse because it was pulling itself. If there had been more horses...

Humans have more brain [than the horse]. So the horse could have got more distracted.

MB: In my experience it's the other way round! The horse doesn't have an iPhone.

LT/ST: I don't know if a horse can communicate or anything. We [humans] can do better at teamwork.

'Labrador dog 36.25 metres' [reading]. My dog could have done that.

This is where we started.

I want to try something. I want to see how long it takes us to run.

[Sam and Luke run along the canal from the 'start' ingot to the 'adult human' ingot]

It took twenty-nine seconds and sixty milliseconds.

MB: Remember we had that discussion about horse power? So when the first cars came along they were being compared to horses.

LT/ST: We had fifteen children. If the horse had fifteen horses it would have beat us as well.

MD: That might have been quite hard to organise!

LT/ST: Why did you pick two minutes [for the time trial]?

NM: We had to estimate how far the engines would travel so the ingots would fit into this stretch of canal before the bridge. We had to try it out, with Neil, Minty and me pulling.

MD: We were going to have one of the engines as '3 x artists' but on the day there was too much going on and we ran out of time. We wouldn't have got very far!

LT/ST: I think it was a really good idea to do.

You should do it again.

It was really fun. It was a good idea to put the ingots to show how we done.

If we ever do it again you could craft more ingots and see how we were last year and how we were this year. Get a bigger barge and more children so we can beat the adults.

If we had one more of the children we could have beat the adults.

ST: It doesn't say our names.

LT: Sam and me are two of these fifteen children.

Reservoir

LT/ST: 'Hillend, Lilly' [reading names carved on granite block]. They're lakes. You've drilled a hole and so when it rains it forms a lake or a pond. Maybe the canal touches them?

This is Lilly. It's a lot smaller. It's got a few estuaries going off it.

MD: What's in it?

LT/ST: There's algae. There's a pound. Stones. Oh there's a penny.

NM: D'you know why people put money in?

LT/ST: For good luck or something? It would probably give you bad luck. There's a feather in it. Look!

LT: You took 20p out the thing! That's someone's wish! I wish that you hadn't touched that 20p!

MB: What was your wish?

LT: That Sam didn't touch the 20p!

ST: I wish for ten pence more! Make a wish, Dad. I think it was already bad luck.

LT/ST: 'Black' [reading name carved on granite block]. It's a bit mouldy!

LT/ST: 'Woodend' [reading name carved on granite block], which is a little small pond.

There's no name on this one. Oh yes there is: 'Lochend' [reading name carved on granite block]. I've heard of that one. We had to do a map survey at school. We had to find six lochs and I picked that one. Plus it looks like a beach.

'Bishop'[reading name carved on granite block]. I remember Bishop. We've been to Bishop. It's near one of those houses that Bishops lived in.

'Johnston' [reading name carved on granite block]. There's a big mix of water going to the canal.

MB: We need to return these coins. C'mon it's bad luck.

THEN/NOW

LT/ST: It says 'THEN'. You're saying what it was like. 'NOW' means the present and 'THEN' means the past.

ST: It's upside down. So it can reflect into the water. Why couldn't you say 'NOW' the straight way up and the reflection says it the other way round?

MB: If you are reading the reflection, you are reflecting about the past and the present.

FOR, WITH, BY OR IN: BRINGING THE POWER BACK TO HERE

Matt Baker

'9

Matt Baker has run his own public art studio for twenty years. During this time, he has delivered projects ranging from temporary events/installations to large-scale permanent artworks and led cultural strategies for programmes of urban change. He was Lead Artist for the City of Inverness from 2006 to 2010 and was Lead Artist in the Gorbals, Glasgow from 1999 to 2005. Since 2011, he has focused on long-term activist strategies for integrating creative practice into the social structures of his home region in South West Scotland. He founded, and is based with, The Stove Network in the heart of Dumfries town centre. He is a founding director of Environmental Art Festival Scotland and a member of the National Partnership for Culture, the group tasked with embedding Scotland's Culture Strategy in the workings of wider Government. In this essay, Matt advocates for public art practice that aims to question, or even shift, the distribution of power. In particular, he considers public art in relation to the power distribution around heritage sites designated as 'scheduled monuments'[81] (such as the Forth and Clyde Canal) and resulting issues of access and ownership. Matt reflects on the approach of the *THEN/NOW* project in this context. Matt wrote the essay in October 2016.

Rightly (and productively), public art never has been something with an accepted meaning that sits still long enough for anyone to have a meaningful shot at defining its terms. To do so would require nailing down 'public' (singular or plural, place or people) and even more trickily the hidden preposition in public art. Do we mean art *for*, *with*, *by* or *in* public? In practice, this means that every artist, commissioner, funder, producer etcetera has to define the terms of what they understand as public art within each project they undertake. This collective dialogue/exploration can and should be a fundamental part of the work that is created as public art: a process that includes all the voices and contributors to the project. This publication, I think, attempts to continue the discussion started by the *THEN/NOW* public art project and the symposium that was part of it.[82]

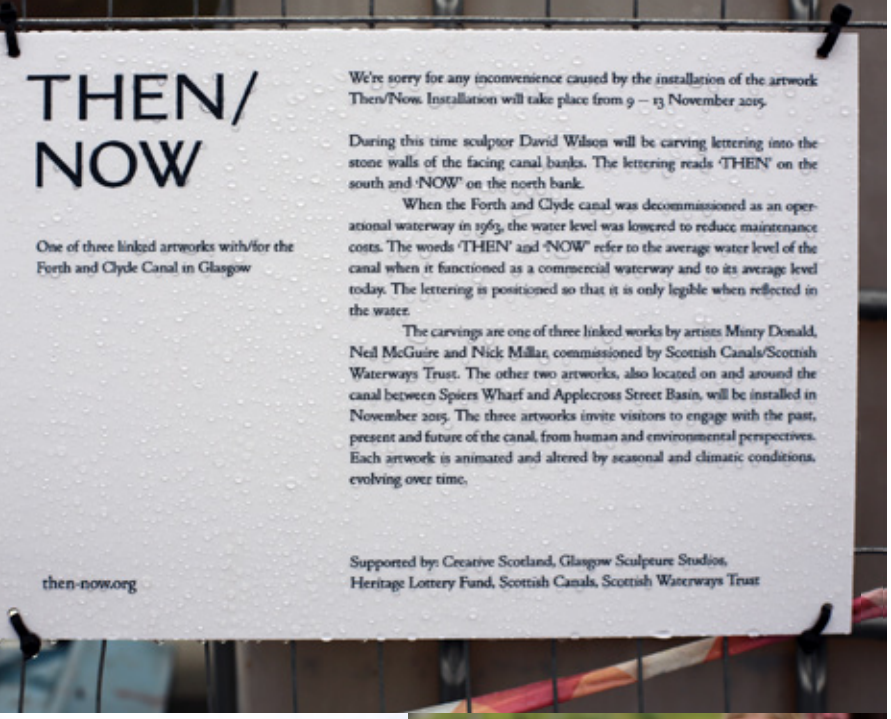
All of which is a pretty long-winded way of me setting out my stall within this multi-layered discussion by saying that I am interested in public art for its relationship with and responsibility to *power*. The arguments for how we experience our society now are made elsewhere[83] but the day-to-day reality we encounter is that a seemingly ever-expanding percentage of the public experience power being *elsewhere*. By this, I mean that the sense people have is that the decisions and responsibility for the conditions they live and work within are not visible or accessible to them. Working in Glasgow's Gorbals[84] in the early 2000s, this was pithily described to me as the 'Gorbals Seagull', which never sets foot in the place but shites on it from a great height.

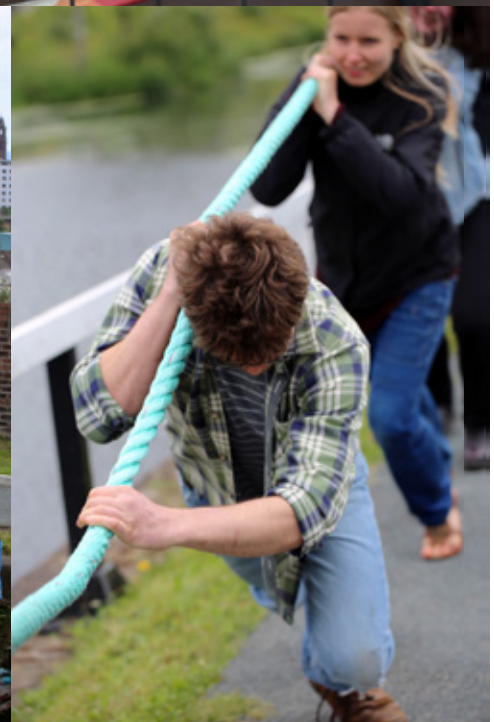
I see this issue as of such imminent and critical importance for our society (and for artists and everyone else working with public places) that I divide public art projects between those that *confirm* and those that *challenge* the idea that 'power is elsewhere'.[85] As I followed the progress of *THEN/NOW*, from an interested distance, it was clear to me that the intention was to make a project that challenged the idea that 'power is elsewhere'. The strategy for doing this was to conduct as much of the project as possible in a hands-on and open way directly in the public places that the project was about.

What I'd like to reflect on is the way that *THEN/NOW* approached issues of power in public space and particularly in relationship to the heritage 'value' of the site for the project. 'How dare they?!' and 'Who do they think they are?!' are fairly common responses to artists working in public places. Often this is prompted by the actions of artists 'doing something' in a place that everyone has been ignoring for years. I'd argue that anyone doing something (anything) stirs up the years of hurt in others that *they* haven't done anything about/for this place, or feel they haven't been *allowed* to, or that it was not *allowable* because it was someone else's job/responsibility. (That pain of *inaction* is almost palpable sometimes.) So, who on earth do these artists think they are just doing things without a by-your-leave, when it is someone else's job even to pick up the litter you drop? Just how far can we become divorced from having a meaningful relationship with our 'public' places? And yet people do have very deep and powerful relationships with places. The challenge is to find a way to value and empower those relationships without making more heritage-lite that clutters and ultimately distances people still further.

The Forth and Clyde Canal in Glasgow is a Scheduled Ancient Monument (SAM). A SAM as the context for a public art project ups the *ante* considerably in addressing the 'power is elsewhere' issue. Heritage puts a massive 'don't touch' sign on parts of our world and, while precise 'ownership' is often unclear, what is clear is that heritage sites are controlled by *someone else*. I have a wee science-fiction dream in which, centuries in the future, our current era will be defined as the 'Age of the Hermetically Sealed Container', as we continue to define things as too precious to touch and seal them away for future generations who, we assume, will know what to do with them and thank us for preserving them for us. Things that are passed down to us acquire a power through time: a power of association and story. In the past this power has been tapped into by the creative reuse of places and things. There is a powerful folk tradition of reinvention and renewal, from the garden-shed workshop to temples and shrines: the 'swords to ploughshares' tradition.

We can all likely see a need for society to protect places and things of quality from those who seek to greedily exploit them for personal gain, but this noble aim has very limited means to distinguish between different forms of proposed reinterpretation – because its primary aim is to protect rather than use creatively. Here, then, is the rub. We all know hoarders who keep everything in the trust that it will be useful one day. We also know the enormous pleasure that a hoarder gets from finding a use for something that they have saved. How then, as a society, can we give ourselves permission to use something in our heritage hoard?





The answer, I believe, comes from trust: a trust grown between people. We have created such an elaborate and impenetrable web of rules that is ultimately designed to take the personal out of decision-making in the name of fairness. But to remove the personal ultimately removes the power of most of us; most of us who do not have the money, qualifications or political power to navigate the systems of permission and, as a result, gradually come to accept our powerlessness. What good public art can do is use the agency of the artist[86] to engender creative and trusting personal relationships around a project/place: relationships that can permeate a risk-averse bureaucracy and allow people to take power in places. In exceptional cases, these projects can bring about policy change to move the power pendulum back a little more towards empowerment and away from control.

The *THEN/NOW* artist team did not come to the Forth and Clyde Canal in Glasgow as wide-eyed innocents. They came (two of them, in particular) as people who have lived and worked on Glasgow's waterways for many years. When they looked at a stretch of canal they were assessing its usability as much as its aesthetic value. This common currency of understanding[87] with the commissioners who steward the canal, those who use it today and have used it in the past, was key to building the network of trust that allowed the *THEN/NOW* project to create the spaces it did. These were spaces for people to be part of a hands-on reshaping of something (the canal as a SAM) that it is assumed will be 'protected' by a massive 'don't touch' sign.

What happened through the trust economy of *THEN/NOW* was a series of accessible and intriguing experiments with canal technology (what does it take to pull something through water?) to full-blown industrial technology (iron

founding), all taking place in fully public spaces with everyone invited to witness or take part. For me, the power in the work was in the public actions it created and the process it took to create those actions. The physical marks left in the canal itself are impressive, for me, by being 'allowed' to be cut into this heritage site, and as physical results of the public actions that created them.

It cannot be overestimated how important the transparency of process and the demystification of the means of production are for achieving the aim of challenging the belief that 'power is elsewhere'. Good practice passes on the handbook to people in and around a project and inspires people to make their own marks on the places around them. For me, the success of *THEN/NOW* will finally be judged in future attitudes to the canal. I hope it will be seen as a part of daily life and a resource for people who live around it. It may be that one day someone will come up with a radical plan to change the canal for a compelling future use. If projects like *THEN/NOW* have done their job, then the local community will have the opportunity and the confidence to express informed opinions about the suitability of the new plans and play an active part of making them happen, if they so choose.[88]

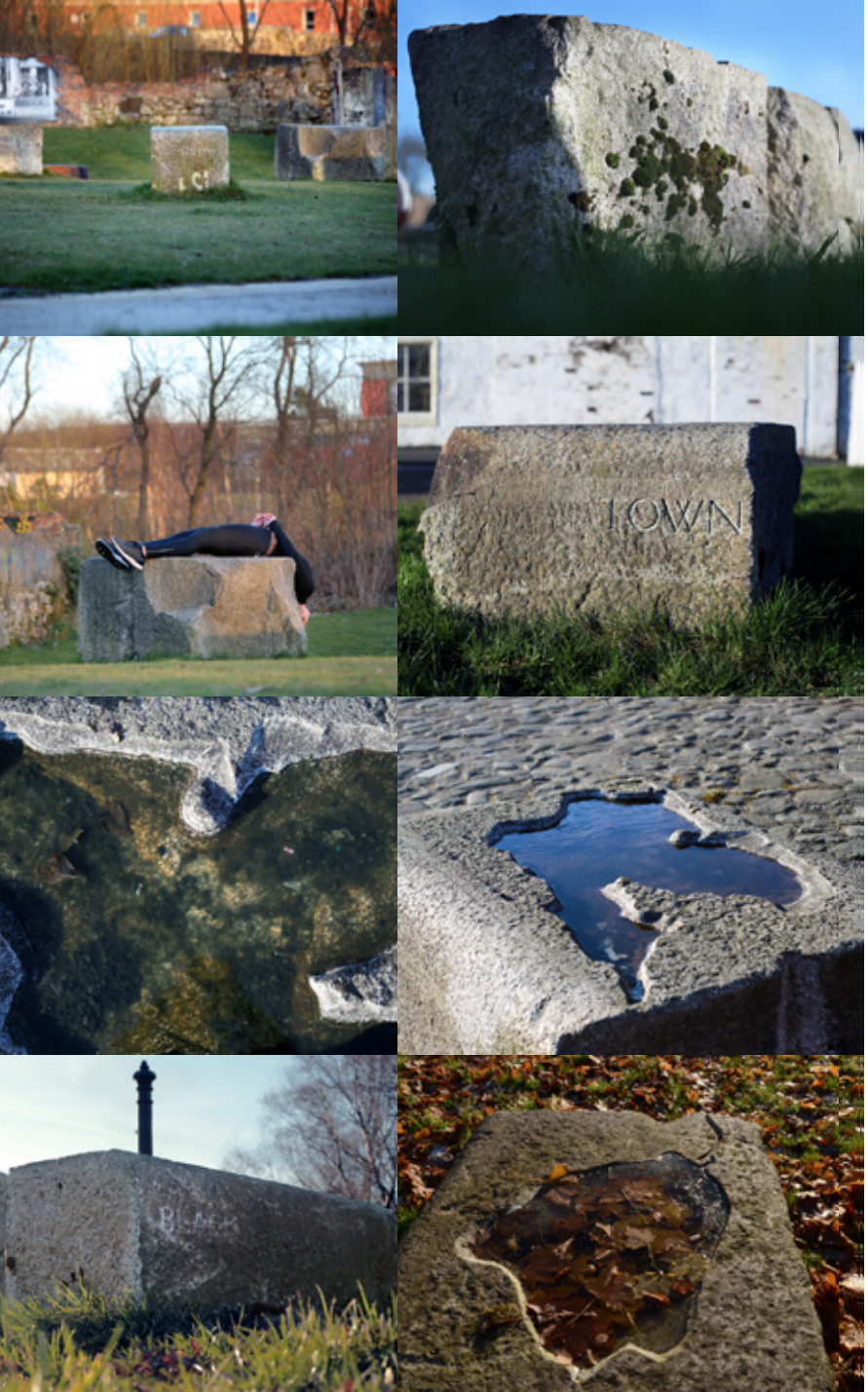
SCOTTISH CANALS: PERSPECTIVES

Minty Donald and Olivia Lassière
Chris O'Connell

RESERVOIR ROCKPOOLS REVISITED: THE MICRO AND MACRO OF ENVIRONMENTAL MANAGEMENT

MINTY DONALD WITH OLIVIA LASSIÈRE

Minty Donald reflects on the *Reservoir* sculptures, in relation to a discussion with Olivia Lassière, Scottish Canals' Environment Manager. The conversation took place on 24 October 2016, nearly one year after the installation of the sculptures, while Olivia and Senior Environmental Specialist, Julia Johnstone, analysed the contents of the 'rockpools' accumulating in the *Reservoir* carvings. The discussion hinged around questions about environmental and heritage stewardship relevant to both the microcosmic habitats forming in the *Reservoir* rockpools and the much more extensive environment of the canal network. The essay was written between June 2017 and July 2020.



In February 2020, more than four years after their installation, the nine carved granite boulders that comprise the artwork, *Reservoir*, look settled; bedded in and naturalised. They are human-made sculptural objects, which have been left, intentionally, without cleaning or maintenance, to transform and evolve through interaction with the more-than-human environment. Moss spreads across their sun-shaded sides, water pools in the miniature reservoirs carved in their upper faces, human and other-than-human visitors to the canal sit and climb on them, drink or bathe at the reservoir rockpools. They accrue patinas of algae and lichen. They look as though they belong in their canal-side resting places. But these are not local boulders. The nine granite blocks, now repurposed as one of the three *THEN/NOW* artworks, were once, allegedly, copestones forming the quayside of Birkenhead Docks near Liverpool, having likely been excavated from a quarry in Dumfries and Galloway.[89] They are 'erratics',[90] nomadic rocks-out-of-time-and-place.

The nine *Reservoir* boulders map the canal's interconnectivity with a more extensive water system. Each bowl carved in the upper face of the granite block is a scaled representation of one of the reservoirs that supplies, or supplied, water to the Forth and Clyde Canal, and the boulders are dispersed on either side of the canal in positions corresponding to the reservoirs' locations across central Scotland. They are a reminder that the canal is interdependent with a much wider network of waterways, which allows water levels in the canal to be maintained. The canal network also functions as a lattice of blue-green corridors throughout central Scotland. These interconnected corridors sustain abundant vegetation and allow animal life to move in relative safety and freedom (essential for their

resilience and thriving) thus encouraging and supporting biodiversity. However, the sculpted stone basins themselves form discrete, isolated habitats. Although these bounded habitats are colonised by microscopic creatures, they are capable of sustaining only a limited range of organisms; for some lifeforms, the rockpool environments are traps in which they cannot survive.

Enclosure and ***connectivity***, ***settlement*** and ***nomadism***, are seemingly binary concepts that relate to the *Reservoir* artwork. In this essay, I reflect on some of the ways in which the artwork navigates these and further pairs of contradictory concepts: ***regulation*** and ***unruliness***, ***conservation*** and ***neglect***, ***natural*** and ***artificial***, ***native*** and ***non-native***, ***permanence*** and ***transience***, ***miniature*** and ***gigantic***.

The essay draws on a lengthy and free-ranging conversation with Scottish Canals' Environment Manager, Olivia Lassière, and Senior Environmental Specialist, Julia Johnstone, in October 2016. We invited Olivia and Julia to discuss the *THEN/NOW* project with us from their perspective as environmental experts working with Scottish Canals.[91] In particular, we asked Olivia and Julia to analyse and speculate on the micro-environments that are continually forming and re-forming in the miniature reservoirs, and their relationship with broader ecosystems. The conversation took place while Olivia and Julia pond-dipped[92] to investigate and identify the 'teeming'[93] plant and animal life in the *Reservoir* rockpools and in the canal itself. Olivia reflected on the processes through which ecosystems emerge, evolve and interconnect, relating her observations about the *Reservoir* microcosms to more extensive networks and systems. The issues that arose resonate with ongoing debates about the management of the Forth and Clyde

Canal, and wider concerns regarding heritage, conservation and ecology, where complex dilemmas must be faced in negotiating competing or contradictory aims, needs and desires. The conversation was unstructured, diverting into tangential topics, and circling back to revisit recurring themes and concerns. The essay, which uses extensive quotes from the conversation, reflects this loose structure.

natural and artificial – regulation and unruliness – conservation and neglect

> The reservoirs are a hidden part of the story of the canals. People think that these canals are just here, that they just happen. But it's not a river, it's a manmade watercourse. Somebody came along here two hundred years ago and dug a ditch and they filled it with water and that water had to come from somewhere.

In this statement, Olivia recognised that the *Reservoir* artwork draws attention to the status of the Forth and Clyde Canal as an overtly human-made environment. The manufactured status of the canal, and the implications of this status in relation to its changing functions and ongoing stewardship, was an issue that threaded through our conversation. As the canal has no claims to an originary, so-called natural, state there can be no impetus to restore it to such a state. In this, Olivia's approach differs from the aspirations of some other organisations engaged in managing rivers, forests and other natural environments.

> There's a group of people called the River Restoration Centre and they campaign to bring back meanders, to make it more like a natural thing. But with canals it's a

> different prospect altogether because it was never a natural thing. We're not trying to reconstruct anything but we're trying to maximise the ecological benefit of it in the way we manage it and the way we design it.

Olivia identified some examples of design features introduced by the canal's early architects, who used natural materials to improve its function and to allow it to co-exist alongside other environmental interventions, such as farming.

> The plants on the canal edge stop the wave wash from boats eroding the side of the canal. The canal builders would've put in emergent vegetation to protect the sides. The other sort of intentional planting was of hedgerows. They wanted to be able to define the boundary of the land and they certainly didn't want cows coming in and across it. So, they planted hawthorn hedges principally. That was a sort of eighteenth-century barbed wire.

Like the canal, the *Reservoir* sculptures are evidently designed, human-made objects, which play different roles in different contexts. As Olivia noted, they are signifiers of the canal's interconnection with a dynamic network of water bodies. Canal Operatives Supervisor, David McRoberts, told us that he finds the sculptures useful as models for demonstrating the bathymetry[94] of the reservoirs to his supervisees. They are also resting places for walkers, water bowls for animals and repositories for cigarette butts, sweet wrappers and other litter. They function as habitats for microscopic lifeforms. And they are art objects. The multiple functions that the sculptures play are not always compatible. For example, algae growth makes the carved contours of the reservoirs less visible, limiting their use as demonstration models, while litter and other detritus affects the potability of the water gathered in the basins.

The question of whether the *Reservoir* sculptures should be maintained, or the extent to which this should be undertaken, was an important one in the process of devising and creating the *THEN/NOW* works. Our stated intention, as artists, was to make work that would respond to and accommodate change – plant overgrowth, littering and graffiti – and which would require no on-going care. On witnessing the changes, however, I found that, unlike Neil and Nick, I was happier to embrace some changes than others. An urge erupted in me to get busy with a pressure hose and clean up the silt, slime and rubbish obliterating the clean lines of the *Reservoir* carvings. But the urge was resisted and, over time, as further accretions and deposits continue to alter the sculptures, my feelings towards them also continue to shift in response to these changes. The patina and detritus the boulders have accrued now appear, to me, to have become part of the sculptures' fabric; no longer a superficial layer of dirt but integral to their evolving materiality. As Timothy Morton puts it, 'to remove the time stain is to harm the actual thing, because a thing actually is this temporal staining'.[95] The *Reservoir* sculptures continue to age, to be 'stained' by the perpetually changing climate and environment, part of an unfolding landscape.

My (resisted) impetus to neaten and tidy up the natural processes of marking and ageing prompted reflection on humans' desires, and authority, to assert control over aspects of the appearance of the other-than-human environment, echoing ongoing dilemmas encountered by Scottish Canals.[96] The extent of stewardship obligations, or inclinations – how to navigate between human intervention and benign neglect – in relation to the overtly human-made environments of both the *Reservoir* sculptures and the canal was a persistent theme in our conversation with Julia and Olivia. Olivia

commented on some of the issues in relation to management of the canal.

> We have to strike a balance because if you leave water untouched it will fill in over time. Sediment builds. Leaves come in, and run-off from roads. So part of our job is to clear that out, to dredge. And that has an effect on the wildlife because it's a form of disturbance. So we have to time it right. If we're cutting vegetation we have to make sure we don't disturb nesting birds. If we're dredging vegetation we tend to do that in the winter. We'll take the dredging sediment and put it somewhere where it's not going to smother things that are important.
>
> Because we have a spectrum of customers and a spectrum of colleagues as well, we have to deal with all these things and attitudes towards nature. Some people embrace it. Other people, go, 'oh it's untidy. I want to clip it down to this height and I'm not going to have anything coming here. No, I don't want any nature anywhere near me'. Or just in the right place.
>
> I work with a lot of engineers and they'll say, 'I want to get rid of that ... I don't want anything to grow on this or move in'. I say, 'well it's going to happen'.
>
> The canals themselves, even though they're man-made, are home for things which are sometimes rare elsewhere. Tufted loosestrife, for example, is rare across the rest of the UK but has a stronghold in the Forth and Clyde Canal because we don't manage the vegetation too intensely. The canal is a fantastic place for biodiversity. Low-intensity management is good for wildlife.

> The litter and other stuff gathering in the [*Reservoir*] rockpools is like a microcosm of the canal. People chuck their old Minis and their bicycles and their shopping trolleys into the canal and their waste goes in, but that's part of the dynamic nature of it. So it's fascinating that all of that's happening on a small scale.

While the *Reservoir* boulders perform multiple roles, as art objects they have no prescribed, practical functions. The canal, it could be argued, is now similarly both purpose-less – with its intended function as a relatively fast and efficient transport route for goods and human traffic long redundant – and multi-functional. As the Forth and Clyde Canal's originary and primary role became increasingly unviable, in the face of changing conditions in trade, transport and industry, a decision was taken in the early 1960s to close the canal to water traffic, culverting several sections. While stretches of the canal remained accessible, from 1963 it did not operate as a navigable watercourse for a period of forty years. In 2002, the canal was re-opened between Glasgow and Edinburgh, following major investment under the auspices of the Millennium Link Project. Arguments for the £84.5 million reinstatement of the canal as a navigable waterway required those bidding for the funds (British Waterways, the organisation which managed the canal prior to the formation of Scottish Canals in 2012 and which oversaw the refurbishment of the canal between 1999 and 2002)[97] to identify new uses for the canal. Since 2002 it has taken on multiple roles: as a site for recreation and leisure activities, a wildlife habitat, a water source and as a component in local drainage and flood-risk mitigation infrastructure. As the social, economic, environmental and cultural conditions in which the canal exists change, the canal is able to adapt and play new and varied roles, unhampered by aspirations to

return to an originary or natural state. The multiple uses and users that the canal now accommodates (both human and other-than-human) can, however, have different and competing objectives and perspectives.

> In managing the canals, we have to strike that balance where we say, 'okay, we need to have water in here so that we can float our boats, and sell water to some other water users, and receive drainage water too'. The *raison d'être* of our business is water. Boats need to get through and if there are weeds in the way then that's a problem. So that's the management we have to do with aquatic plants but only in the central channel. At the edges we can have vegetation and young fish can hide in this vegetation. And then on the land people want to access the canals, so we have to cut the grassland.
>
> You have adaptability and flexibility. While it was built with an entirely different purpose, it can still be not just a resource that people like to come and walk by but also a useful resource. The thing with the drainage concept [where the canal acts as a storm water catchment basin] is not only that it alleviates flooding, which is a real social issue and everything else, but you create habitats, you create places for wildlife.
>
> If you look back at the history of canals, canals were there to spark off the industrial revolution. As a consequence of the industrial revolution we have climate change. And then because of climate change we have more changeable weather, more extremes of weather, which includes flooding and storm events. And so now the canal has a role: having started off the industrial revolution and leading to all this CO_2 in the atmosphere,

it now has a role in dealing with those extreme weather events. So it's an interesting sort of circular history.

native and non-native – traditional and untraditional

The *Reservoir* stones are neither native nor local. They are human-made 'erratics', granite blocks transported from their originary location, most likely in southern Scotland, and deposited on rock of a different lithic type. In considering their use in the *Reservoir* artwork, Neil, Nick and I debated the appropriateness of introducing this non-native rock rather than, for example, sandstone which, unlike granite, was quarried in and around Glasgow and was used for the copestones that edge the canal. Our deliberations raised questions about the designation of matter (such as stone, or vegetation) as 'native' or 'invasive', 'traditional' or 'non-traditional', and about how these designations are applied in some approaches towards heritage and environmental management.

Neil, Nick and I discovered the granite blocks in a large, overgrown heap, seemingly discarded, in Scottish Canals' work yard. Our research suggested that the granite boulders had been acquired by British Waterways, allegedly from Birkenhead Docks. British Waterways' intention was to use the granite copestones in the renovation of the Forth and Clyde Canal. However, the Forth and Clyde Canal is classed as a scheduled monument and any alterations to its fabric consequently require authorisation from Historic Environment Scotland.[98] Historic Environment Scotland stipulate the types of materials that can be used in restoration work, with the aim of maintaining the character

of historic monuments. The use of the granite copestones, when sandstone had historically been used on this site, was not condoned. No such restrictions governed our use of the granite blocks, however, as the *Reservoir* sculptures are located just outwith the perimeter of the designated historic monument. Decisions determining what is, and what is not, local, native, traditional and, therefore, permitted in sites that are subject to heritage or environmental management also concern Olivia and her team, who navigate debates about native and invasive species.

Vegetation management is a key part of our biodiversity management. One part that's challenging for us that we have all the time is invasive species. So things that have been introduced from abroad: plants and animals. Bennett's pondweed is a water plant that we find in the Forth and Clyde Canal in Glasgow, and that's the only place in the world it occurs. Bennett's pondweed is a hybrid species that emerged because a plant from Scandinavia (found in the timber basins in Grangemouth) bred with a plant within the canal. Nowadays, the Scandinavian plant could potentially have been classed as an invasive species. But many plants have arrived here in different ways and we only concern ourselves with ones which cause a problem. About ten percent of the things which are introduced have the potential to cause trouble. They can grow so competitively that they will push out native species.

permanence and transience

In public art and heritage conservation practices, definitions of permanence, and the significance of categorising artefacts,

buildings or environments in terms of longevity, are subject to ongoing debate.[99] Issues of temporal duration also concern environmental managers. Neil, Nick and I were interested in the ways in which the *Reservoir* artwork might manifest different temporal scales, troubling oppositions between permanence and ephemerality. The work was commissioned as a 'permanent'[100] public artwork and is fabricated from a hard, durable type of rock whose process of erosion is barely perceptible within human timeframes. But the carved granite blocks are subject to cycles of seasonal, climatic, meteorological and circadian change. The rockpools fill, drain, evaporate, freeze and thaw. Wind ruffles or rain dimples the surface of the water; vegetation and creatures are deposited and take up residence in the carved basins, moss and lichen patinates the granite boulders. Olivia reflects on the multiple temporalities at play in the artwork, and on the canal.

There's different timescales with nature. There's a long-term timescale – what colonised, what came here over time. And then you get the seasonality – what's there in winter and spring and summer and autumn. That's mostly a cycle of plants growing up. And equally for the animals, some things live permanently on the canals, some go away and come back. So there's that kind of timeframe but there's also the diurnal timeframe, what happens within a day too.

Terrestrial things I always imagine as being fairly permanent. A tree will be there for one hundred years. But what happens in water just seems to be more transient, particularly when you talk about smaller ponds or puddles or your *Reservoir* rockpools. These things are like little transient microcosms of life and they're only

there for a short period so they can only sustain certain life forms. But you'll find in those new reservoirs certain things are establishing, like little algae. There might be tiny single-celled algae – little things called diatoms. So those are the sort of things which are able to colonise pretty quickly in new habitats, which was what you created by making the carvings into granite.

What's also interesting about water wildlife, both plant and animal, is that they have a lot of really robust resting stages so that if the water disappears they could hang on. There are certain things like water fleas, daphnia, which could be in the mud just hanging around waiting for the next time when the weather gets better or when the water returns to get going again.

connectivity and enclosure – miniature and gigantic

The miniature reservoir carvings represent a much larger, dynamic, interconnected water system. While they create enclosed, isolated habitats, they are also linked to wider eco-systems through precipitation; or through the animals, birds, and other flying creatures who visit the rockpools and leave traces of their visits; or the seeds and vegetation dropped or blown into the basins.

Water beetles for example, if they're flying over they'll be able to see the reflection on the water surface and they'll come down. That's how they colonise. They'll spot water. Seeds will be blowing around – some of those airborne seeds. Most grasses have got very lightweight seeds so that's why they colonise very well.

The rockpools' severance from a source of flowing water, however, affects their ability to function well as life-sustaining environments. Olivia draws comparisons between the rockpools and the canal itself, stressing the importance of a through-flow of water.

> In some waters if there's too much nutrient, say from bird poo, you'll find you get algal blooms. The water will go green. That happens very rarely in canals because you've got clean water coming in. But if you've got a closed system like these miniature reservoirs, you'll get a build-up of nutrients and then the algae will take off.
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> Key to all of this place [the canal] is the fact that water's coming in. Without it, that reliable supply of water, we'd not be able to operate the canal network or deliver all of its associated and multiple economic, social and environmental benefits. The water is coming in from these reservoirs so we have a marker through your artworks about that water coming in. But there's a big flow of water, you know, it's like millions of gallons of water, three and a half million gallons of water come through here every day. And that's not visible because the flow is very slow. It's only, I think, 0.1 of a metre per second, so it's not like a big fast flowing river that you might see in Scotland in a hillside somewhere. It's something that's going very slowly but it's coming through and it's bringing fresh, clean water in every day and that feeds the whole of the system. And so that water I see as almost like the lifeblood of the canal network because without that water all the other things wouldn't happen. Not just the practical uses we have for it but allowing nature to come in, too.

> What we try to do is have dynamic habitat management, so you create the right place and the things that want to live there will live there for however long they want. They'll pass through or they'll be there more permanently. What's happened is the canal is sometimes like a little oasis. Then you come away from the canal and there's nothing. What we want to do is make connections. Let wildlife find a place where they can connect so that different populations can interbreed with each other. If they get isolated they don't have genetic diversity and they're not as resilient to change. So by creating connections with other places for nature you improve the resilience. We see the canal as a connector – a green-blue corridor.

Olivia described the rockpools as 'terrible wildlife corridors' in relation to the confined nature of the habitats they form and their subsequent entrapment of some creatures who inhabit them. The enclosed quality of these manufactured micro-environments aligns with humanities scholar Susan Stewart's reflections on the 'the miniature' and 'the gigantic'. She proposes that, for humans, 'the miniature' and 'the gigantic' have taken on contrasting, metaphorical associations:

> Whereas the miniature represents closure, interiority, the domestic, and the overly cultural, the gigantic represents infinity, exteriority, the public, and the overly natural.
> SUSAN STEWART [101]

In the *Reservoir* artworks, however, the apparently opposing concepts of 'miniature' and 'gigantic', and what they represent, are unsettled and complexified. From an other-than-human perspective, for instance that of a caddis

fly, the worlds of the rockpools are not miniature. The rockpools may represent closure, or entrapment, for some creatures, but the miniature carved reservoirs are not bounded environments for others. The *Reservoir* sculptures may be cultural artefacts, designed and made by humans, but they are soon naturalised: populated by insect and plant life, the sharp, clean lines of the carvings smudged by algae, soil and moss.

Concluding thoughts

Response-*ability*, rather than responsi*bility*, seems to be a core value of Olivia's approach to environmental management, and one that I hope our artworks echo. Donna Haraway, writing about global environmental crises, uses this term, entreating us to become response-able, rather than to be or feel responsible.[102] In distinction from responsibility, which positions humans, other entities or forces, as responsible *for*, response-ability advocates responsiveness *to* and *among*. Responsibility can place one agent (whether human or other-than-human) in a position of assumed dominance through believing themselves uniquely responsible for a particular situation. Responsibility can lead to an unproductive apportioning of blame. For those charged with making decisions about how and when we intervene in the other-than-human environment, aspiring to response-*ability* might offer relief from the pitfalls of responsibility. Intervening always, of course, has consequences, and those consequences extend unpredictably into unknown futures: whether the intervention is a modest public artwork, a major construction and engineering project or the seasonal pruning of vegetation. These consequences may at times be considered 'positive', as in the new role that the Forth and

Clyde Canal is finding as a wildlife refuge and flood management resource, or 'negative', like the *Reservoir* rockpools' acting as death traps for some lifeforms. But these values ('positive' or 'negative') are not fixed; they are relative and constantly redefined, in accordance with changing material and social contexts, and with shifts in dominant perspectives or ideologies. Suggesting that we humans must assume responsibility for the consequences of our interventions, while at the same time recognising that those consequences are unpredictable, can lead to crippling guilt and fear of taking any action. Response-ability offers an alternative way of being with the other-than-human based on mutual responsiveness, which is both less arrogant and less likely to induce guilt and fear. There is, of course, no single model for response-ability. Our decision not to propose any ongoing maintenance for the *THEN/NOW* artworks after their installation and to endorse their unmediated evolution and ongoing encounters with human and other-than-human entities is one model, contingent on our predilections and roles as artists. Olivia and Julia's approach towards environmental management, where they combine pragmatism, flexibility and a deep knowledge of their field with sensory immersion and a sense of enchantment, is another.

Julia and Olivia describe and comment on what we found in the Reservoir rockpools:

Lilly Loch

You can see the natural processes that happen in waterbodies in this reservoir. Vegetation finds its way in, it will start to rot down, it will form a sediment on the bottom and then various other things will come in like seeds. Things will come in on the feet of birds or get blown in or fly in if it's a water beetle. And they'll start to colonise. We're at the early stages of colonisation here where we've got this brown scum. We're not sure what it is. Potentially it's a form of algae which could be a diatom.

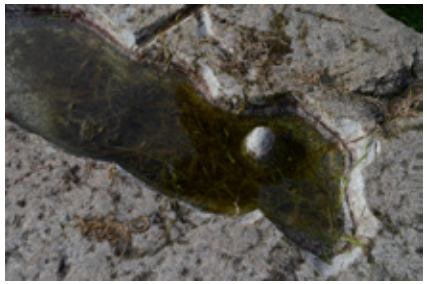
The carved contour lines of the reservoir create surface roughness. So if you were a small living thing that surface is full of crags. The more indentations you have, the more micro-spaces for nature to live.

You'll start to find things like midge larvae moving in here as well. They love this kind of environment. Dancing midges or biting midges.

Here a little fly that's drowned. It will become nutrients in the water.

You have to give it time to settle. After ten minutes things start going, 'alright this is our new environment. We're going to show ourselves now. We're not feeling so scared after all'. This doesn't seem to be moving. It could be something that's found its way in there and it's not the right habitat for it so it's just drowned.

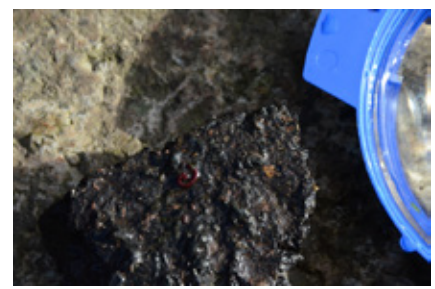
Townhead Reservoir



This is different. It's more leafy and full of grass.

So we've got a different thing happening here. The other reservoir was brown which potentially could be a diatom film. And then this looks like it's got green algae at least in the water, maybe not so much growing on the surfaces because it feels slightly slimy. If I just put my finger in there, can you see I scraped up some tiny algae? So this will be little single cells. That's the early colonisation of your pond here. A few bits of bird poo in there, nutrient levels going up, and then we can get an explosive growth of algae that's called an algal bloom. That's when you get problems with oxygen levels and then that's why you get fish dying off.
Feather in the water. Seems we had a bird visitor. So, you know, there's lots of little tiny clues when you start to see a bird's had a wash in there, he could've dropped anything off – a little bit of duckweed. They'll be one of the early colonisers because they're easily transported. That's a good evolutionary strategy of the duckweed. 'I can get all over the place because I'm so light and tiny, nobody notices me and I fly off with one bird to another place, just like that.'

These are chironomidae larvae here. That's that red thing. Some people call it a blood worm, but that's the larvae of a dancing midge. They've got haemoglobin in them just like we've got in our blood. So they're able to absorb as much oxygen as available. In some polluted places there's not much oxygen so they're going to be at a competitive advantage. There's a lot of them. This whole thing's full of them. Oh, how exciting.



What have you got there? Can you see how it's jumping on the surface? It's called a springtail collembola.
There's a lot going on in this reservoir.

Black Loch

So this is interesting, isn't it? The other reservoir was completely clear of any kind of growth like this, the green growth on it and just the little red bits around the edges.

This is below a tree so I don't know whether some of the leaves would've come in? It's getting more organic matter. Is it sunnier here? Is that why it has established more? It's got algae growing on the side of here: pleurococcus.

Here's a little insect having a rest. Like a daddy long-legs type thing.

Hillend Reservoir

This is different again. It's not below a tree. It's got coins. It's got feathers. And some bits of newsprint.

This has got a little bit of the red hue that we saw in the other ones. It's got the green as well that we've seen elsewhere.

Here's a twenty pence coin. There's algae growing on it as well. It's been there a while. And there's a ten pence and a penny. Have people put them in because it's good luck? It's like a little Trevi Fountain!

HERITAGE INTERPRETATION: A MULTI-LAYERED APPROACH

CHRIS O'CONNELL

Chris O'Connell is Senior Heritage Advisor at Scottish Canals. He was involved in the commissioning process for *THEN/NOW* and acted as an advisor to the artist team, providing access to historic documents and expertise within Scottish Canals. He also organised a public event with the artist team, where people could participate in an archaeological dig on the site of a former iron foundry on the canal banks and witness the process of casting iron. Chris reflects on *THEN/NOW* in the context of public engagement and the interpretation of what are commonly known as 'heritage sites'. Chris wrote the essay between November 2016 and August 2017.

As Senior Heritage Advisor at Scottish Canals, I have developed, along with my colleagues and partners, a multi-layered model for the interpretation of canal heritage. This model includes canal-side interpretation boards, the use of digital media, the collection and presentation of personal testimonies and interpretive artwork. This multi-layered approach is designed to both capture and present the history and heritage of the canals by creating mechanisms that engage with and give a voice to canal users, and to broaden the scope of media Scottish Canals uses to present this history and heritage.

History can be defined as a continuous, typically chronological, record of important or public events, or of a particular trend or institution. Heritage can be defined as the traditions, achievements and beliefs that are part of the inherited history of a group or nation. The important distinction between the two definitions is that heritage puts emphasis on beliefs and the inheritance of these beliefs across generations. This person-centered heritage definition opens a greater array of potential voices and therefore can be more inclusive in terms of what 'history' is being told and how it is being presented.

In this essay, I look in more detail at these multiple strands of interpretation and how they came together in the heritage intepretation project Glasgow – Unlocking the Story, of which Minty Donald, Neil McGuire and Nick Millar's public art project, *THEN/NOW*, was a part. I reflect on how these projects have influenced subsequent approaches to heritage interpretation on the canals.

When engaging with individuals to generate content for interpretation, I advocate the use of the word 'story' over

'history'. This gives greater freedom to the individuals that come forward to tell their canal-related stories, partly because they are not yoked to having to produce a verifiable version of events, but also because storytelling is a simple and direct means of communication. My colleagues and I take it on trust that the stories that we are being told are the best recollection of events that an individual has at that time. Oral stories are also emotive and engaging, often more so than a purely historical or written narrative. The spoken word captures the accent, and subtle changes and nuances in emotions are conveyed both consciously and subconsciously by the speaker. Throughout our species' evolution, stories have been one of the primary mechanisms through which information about events experienced has been conveyed, predating written language by millennia. Stories and storytelling therefore resonate deeply with listeners.

Stories also allow people who have very little historic contact with the Scottish canals to come forward and relate their canal-side experiences. This approach helps reinforce the notion of heritage as inheritance. Documenting these contemporary experiences builds a portfolio of canal-related transactions and stories that can be readily passed on to future generations, becoming themselves pieces of canal history.

The emphasis on community heritage does not mean that my colleagues and I disregard historical research. Far from it. We engage in historical research on a near-daily basis in order to inform both operational requirements and planning applications, as well as creating content for interpretation boards and media coverage. There are two mechanisms whereby this historical research is conducted: desk-based research and field research. Desk-based research

will use both primary sources, such as our own archive, and secondary sources, such as published historical narratives, photographs and video. We also use first-hand accounts, often from our own staff who may have been involved in the historical event we are trying to describe. Field research will include visits to the site or assets that are being researched. Archaeological investigations are undertaken when we are dealing with buried remains.

This research is also used to produce content and an interpretive strategy for projects that require historical information, such as heritage trails. It can be a useful tool to initiate engagement with canal communities, providing a skeleton of historical events that can be fleshed out by personal testimony. This engagement-through-personal-testimony is obviously only applicable to recent events but the outcome of this strategy is that first-hand experiences can be digitally captured, adding to a growing corpus of knowledge and experience of the canal that is preserved for the future.

In recent years, there has been growing momentum to interpret canal heritage through artistic interventions, such as sculptures. One example of a sculptural intervention is Emily Promise Allison's *The Diver*, a small pewter model based on a canal diver called Jimmy. The work is installed on a concrete wall at the end of Spiers Wharf on the Forth and Clyde Canal in Glasgow. It is completely devoid of supporting information. Any clues to the 'meaning' of the sculpture are derived from visual cues in the context of the canal. The figure is clearly a diver, their equipment suggesting a time past where diving suits where cumbersome and included large brass diving helmets fed by air hoses to the water surface. The location of the sculpture next to the

canal encourages the observer to conclude that this is a canal diver and that it is a representation of a historic figure.

A further popular and rewarding method of engaging with canal communities and eliciting their knowledge and experiences is through events. Guided walks and tours are common methods used by many people and organisations across the heritage sector. Scottish Canals and our partners Scottish Waterways Trust[103] provide landward and waterborne excursions. These are often two-way transactions between the guide and the guided, with the guide offering up explanations which can stimulate or evoke memories from those taking part in the tour. A recent example was the open day at the former Rosebank Distillery in Falkirk. As part of a public planning consultation addressing the reuse of the former distillery, Scottish Canals and Scottish Waterways Trust offered short tours around the disused distillery. The one-day event attracted over one hundred visitors, many of whom brought bottles of Rosebank Whisky, now no longer produced but at one time a very popular lowland whisky. Some of the visitors had worked at the distillery and were keen to tell their stories. One woman, a former clerk, gave a detailed account of the various distillery managers she had worked for, providing valuable information for genealogical research.

The Scottish Canals and Scottish Waterways Trust project Glasgow – Unlocking the Story brought together such multiple strands of interpretation. This interpretive project included the creation and installation of canal-side interpretation boards, the collection of oral histories, public events such as a barge pull, an archaeological dig and iron founding, the production of a heritage app and the installation of 'permanent' public artworks.

The interpretation boards were designed by Scottish Canals' appointed design contractors. They were a contemporary design with light-touch, sometimes humorous content, augmented with historic photographs and imagery. The limited text was designed to whet the appetite of the reader, with the suite of boards creating a breadcrumb trail of interest along the canal. On the boards was a QR code that could be read by smartphones and which would take the user to the Glasgow – Unlocking the Story app. The app provided much more historical content and images than was provided by the boards. For those visitors who did not have access to smartphones, a paper booklet was also produced, which provided a similar depth of content as the app. The intention of the breadcrumb trail approach was to draw people into the story and not overwhelm them with information that they could only access on the canal-side, but rather provide content that could be remotely accessed, via the app, or read at leisure at locations other than the canal.

Glasgow – Unlocking the Story was also the first canal heritage programme to record people's oral histories. Staff from partner organisations as well as volunteers were trained in the use of recording equipment and a campaign of community engagement was launched to reach individuals who had a story to tell. Although only a handful of oral histories were recorded, it became apparent that they were a rich source of interesting and engaging information about the canals.

The Unlocking the Story project also involved the commissioning of public artwork. The commission was awarded to Minty Donald, Neil McGuire and Nick Millar, who proposed to produce a suite of three 'permanent' sculptural installations placed at locations around Applecross Street in Glasgow, aspects of which were generated during canal-side public events. One of the three sculptural installations comprised relief carvings of the reservoirs from which the canal draws water. The scaled-down representations of the reservoirs were carved into former copestones and located in a manner that reflects their topographical positions relative to one other. These reservoirs, although a vital part of the canal infrastructure, are less obvious and less known to the wider public than the canal channels. They are located some distance from the canals, connected only by a series of small feeder channels and not readily recognisable as canal infrastructure. The obscurity of these reservoirs to the wider public is reflected in the way in which the sculptures are installed and labelled. There is no explanatory signage, with only the name of the reservoir, for example, 'Black' or 'Lilly', giving an oblique clue as to the nature of the relief carvings. As with the *The Diver* sculpture, the visitor is required to delve deeper into the meaning of the sculptures by their own efforts, by internet

research or calling into Scottish Canals' office, also located at Applecross Street. Over time, the sculptures may become recognised in the public discourse as representations of canal reservoirs. Given their prominent positions on the canal side, they may also gain significance through associations with other events in people's lives.

A further strand of the Unlocking the Story project involved encouraging engagement with heritage through experience. As discussed previously, guided tours are a common tool for engaging with groups. Volunteering opportunities provide further means by which people can get involved in the operational side of managing a canal. Scottish Canals also offer opportunities to get involved in archaeological excavations as a way of discovering heritage in a practical and physical sense. Public excavations can act as a forum for discussion, where those taking part can share their knowledge, experience and opinions of the canals. One such archaeological event took place at the site of the Victoria Foundry, on the Forth and Clyde Canal, Glasgow in 2015 as part of the Unlocking the Story project.

Victoria Foundry was a typical canal-side enterprise. Established in the mid-1800s, it produced iron-work, including nails for the burgeoning industries in Glasgow. Latterly it changed production to glass and was in use up until the mid-1900s, when it was finally abandoned and the remains bulldozed flat. The former site of the foundry has the potential to be developed for commercial and residential purposes, which could impact on the archaeological remains of the foundry. It is likely that if Scottish Canals develop the site there would be a requirement by the local authority and/or Historic Environment Scotland to undertake a strategy of archaeological mitigation to preserve as much of the

buried remains of the foundry as possible. In order to better understand the preservation and extent of the foundry, it was decided to undertake a small exploratory public excavation before initiating a programme of development and before the possible requirement to run a programme of archaeological mitigation.

Victoria Foundry. Reproduced with permission of Historic Environment Scotland

Following a previous successful, small-scale public excavation in 2013, a suite of public events took place at the site of Victoria Foundry in 2015, under the auspices of the Unlocking the Story project. This group of public events included further archaeological excavations; a public iron founding and casting, using a temporary furnace erected on the site; a sound installation evoking the aural environment of the foundry; opportunities to take part in a metal detecting survey and to re-imagine the layout of the foundry using historic plans of the area.[104]

As part of the *THEN/NOW* project, Minty Donald, Neil McGuire and Nick Millar worked with Glasgow Scuplture Studios to construct a portable furnace, which was erected on the site. The furnace was fired up by a team of artists from Glasgow Sculpture Studios and watched by an intent, excited and perhaps slightly nervous audience (iron founding requires temperatures of around 2000 degrees centigrade). The public iron founding produced a series of seven iron ingots, each cast with raised lettering recording results of a public barge-pulling time trial, which had taken place on the canal in the previous month. The ingots were later installed on the canal bank, as one of the three 'permanent' *THEN/NOW* artworks, making reference to the traditional iron ties that were used to brace the stones.

On the day following the iron founding, members of the public visited the site to take part in an archaeological dig. The archaeological work built on earlier excavations in 2013, with further exploratory trenches being excavated and more remains of the foundry recorded. Visitors also had the opportunity to examine the (now cool) iron furnace and witness the ingots being released from their moulds. They could work with archaeologist, Chris Dalglish, to map out the parameters of the foundry using historic plans. A sound work using recordings of foundry work, made by artist Philip Gurrey, played continuously throughout the day, providing a further, evocative, aural dimension.

The combination of sound installation, iron casting work, archaeological excavation and spatial re-imagining of the parameters of the Victoria Foundry created a multi-layered, sensory experience that no one element could have produced. It appealed to those who enjoyed the physicality of the excavations and the manufacture of the ingots but also appealed on an imaginative level to those who were interested in the approach to heritage provided by the artworks of Minty, Neil, Nick and Philip.

Since the Victoria Foundry event, Scottish Canals have continued to explore and adopt a multi-layered approach to interpretation. Interpretive projects are now underway on the Forth and Clyde Canal and Union Canal, with art installations forming part of an integrated approach, alongside community engagement activities, oral history collection and the development of canal-related apps. This approach to interpretation has also been extended to the Crinan Canal where, at Ardrishaig, Scottish Canals installed an art and heritage exhibition around the infrastructure of a former oil refinery. These new initiatives reflect a commitment to a multi-faceted approach towards heritage interpretation. They demonstrate that Scottish Canals recognise the value of incorporating the kind of approaches towards heritage exemplified by projects like *THEN/NOW*. Alongside the more direct, informative, factual or story-based approaches used in much heritage interpretation, Scottish Canals now recognise that artworks that are perhaps a little more oblique and evocative, which allow space for multiple, imaginative interpretations, or for engagement on emotional and sensory levels, can play an important role in opening up heritage sites like Scotland's canals for diverse visitors.

TEN MONTHS OF THEN/NOW: AN EXERCISE IN WEATHERED THINKING

Carl Lavery

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JANUARY

THEN/NOW is in a tradition; it occupies a field – primarily that of conceptual or post-minimal art that we associate with a number of land artists, such as Robert Smithson, Michael Heizer and Nancy Holt. But whereas much land art was concerned, like the eighteenth-century landscape gardener Capability Brown, in moving and disturbing the land for the sake of the perfect image, *THEN/NOW* is a slight work; its mode of operation on the canal is discrete – so discrete in fact

that you can often miss it. In that respect, it is much closer to the work of contemporary eco- or public artists such as David Nash, Matt Baker and Jan Dibbets, each of whom moulds objects that can be moved, eroded and tampered with. This is work on a human scale that paradoxically and generatively points beyond the human to the earth systems that support it. Like a John Cage piece, *THEN/NOW* is decidedly non-heroic, a work that is desperate to get out of the way in order to let the world in, a work that reverberates rather than absorbs. *THEN/NOW* is stubbornly anti-spectacle; it creates a kind of 'small enchantment' when I am in the mood to receive it. Or better still: when everything I meet on my daily walk along the canal with my dog, Mali, a black cocker spaniel from Wales, attunes me to it. Much of this is accidental – the sudden falling of snow, the play of light on the water, rain that makes me stop, dropping the dog lead.

FEBRUARY

February 2016 offered respite from the endless waves of moist air and storm systems that swamped the west coast

of the UK in the winter of 2015-16. While there were days of continual rain, there were also long spells of cold dry weather, and the canal froze in places. On a cold day in mid-February, I saw a mute swan stuck in the ice by the green-painted doocot that sits next to Firhill Stadium, Partick Thistle's footfall ground. In order to navigate the canal when frozen, the swans usually break a path through ice with their bodies, which they can use for landing and take off. On this day, however, because of the sudden drop in temperature as evening approached, the thin stretch of open water had solidified again, and the swan was unable to extract itself from the ice. People stood mesmerised and anxious. Someone phoned the Royal Society for the Protection of Birds.

Despite the change in sunlight, on my walks past *THEN/NOW* in late February, I couldn't see much, by way of a material semiotics, that heralded the coming of spring. We were still in late winter, and the vegetation and animal life were naked, quiet and dormant. It felt like we were in an interstice very much in the NOW of winter, still waiting for the THEN to come. A kind of wearied impatience. The work becoming part of things, entangled

in atmospherics, the impossibility of inhabiting its own caesura.

MARCH

According to Jane Bennett, enchantment allows for the possibility of an ethics, a type of empathy with matter:

> The experience of enchantment is...an essential component of an ethical, ecologically aware life. In the mood of enchantment, we sense that 'we' are always mixed up with 'it', and 'it' shares in some of the agency we officially ascribe only to ourselves
> JANE BENNETT[105]

Bennett's words provide a useful theoretical lens for investigating the effects and affects of the work on spectators, if that is the right word to describe those members of the public walking on the canal who unexpectedly encountered the nine granite boulders that sit on both sides of the canal at the bridge at Applecross Street. The surfaces of these

'erratics' have been sculpted to resemble, as in a scale model, the nine reservoirs that feed, or fed, the Forth and Clyde Canal. Depending on the weather, the surfaces of the stone can either be filled with water, iced-up as solid blocks, or, more rarely, left completely dry, containing, then, only cigarette papers and faint green rings, the traces of the rain that has accumulated in them over the winter. The stones have been weathered. After only four or five months on the canal, they already show the marks of time.

As I watched my fellow walkers on the canal engage with the works, I often witnessed a sense of perplexity and hilarity. It seemed to me that they were seduced by the sculptures, trying to make sense of them, wondering about their status, caught in a desire to decipher, to make sense. I saw children, adults and adolescents laughing, touching the stones, feeling the matter, being drawn in by their shape and form. They would also look at the flanks of the stone, and what they saw etched on the granite were the names of the reservoirs: Lilly, Hillend, Johnston, Woodend, etcetera. Crucially, though, there was nothing in the work to provide an obvious context for interpretation. There was a gap or interval between signifier and signified, and what filled this gap was nothing other than what Gaston Bachelard has termed in his great book on air and dreaming, 'the material imagination', an imagination that is affected, enchanted and produced by elemental matter.[106] If Bachelard is right in his psychoanalysis of the four elements (air, fire, water, stone), then there would appear to be some inextricable and ineradicable symbiosis between the earth and human creativity, something non-negotiable and atavistic, something that cannot be undone. Earth as creative source, producing its own mythology, a poeticised materialism.

APRIL

I was away from the canal for much of April, but what sticks in my mind is a clear blue day somewhere towards the middle of the month when I saw the stones become luminescent in the early spring sunlight. They shone white like moonstones and seemed mysterious, alive, moving at a different pace from the rest of the percolating world. *THEN/NOW* is an open-air installation, a weather work, something that changes in time as it is buffeted, eroded and enfolded by the weather of Glasgow, by its geography of circumstance, by its aerography. Even though it uses the dense elemental matter of stone and iron for its form of expression, *THEN/NOW* is not really a work about objects; rather, it seeks to gather the incorporeal stuff of the atmosphere around it, attuning us to the otherwise invisible play of pressure systems, temperatures, the always moving, transient passage of the sky. It is then a work about time, something that, for Michel Serres, is found in the inextricable etymology of the words *temps* and *tiempo* in French and Spanish, both of which translate as time and weather.[107]

MAY

The willow trees are opening. Sun, photosynthesis, leaves, green, a heron, swallows dancing through the gaps of the electricity pylons, and nine new signets taking to the water from their nest at Rockvilla – the new home of the National Theatre of Scotland. 'Creativity without Bounds'? I focus on the word NOW that is written, upside down and in reverse, on the side of the canal nearest to the building, The Whisky Bond. It is reflecting its opposite – NOW – on the calm, silky surface of the water. I also know that there is an engraved (upside down and reversed) THEN placed on the side of the canal where I am standing, under my feet, invisible to me. There is in this play of light and reflection, this temporal assemblage, something quite intriguing, I think. The work makes me see that the present is never quite here, always on its way elsewhere, an impossible trace. The work's ability to put the 'present in crisis', to distribute it, is what makes *THEN/NOW* so ultimately 'theatrical'. For theatre is a medium that never stands still, a machine that places the performer in two incompatible spaces: the HERE of the body; the THERE of the character or

persona. The present, of course, is caught in this fugitive space, lost in this shimmering movement, never quite here. The always changing surface of the water makes it a perfect medium for *THEN/NOW's* theatrical meditation on time, its commitment to the present participle.

JUNE

Much ecological thought today is seduced by what has been called neo-materialism, a type of materialism that stresses the living agency or vibrancy of matter. The logic at work in this attentiveness to the molecular and inorganic, to what is ordinarily left out of our discussions of the world, is to decentre the human, to show that it is just one actant in a network of energetic connections, feedback loops and flows. *THEN/NOW* is very much part of that debate. It draws our attention to the affective power of materials to create thought, to produce imaginings, maybe even existential territories. However, the work, whether consciously or not, does something else. In its invitation to think the split between *THEN/NOW*, it cannot help but

bring to mind a very different form of materialism, a kind of historical materialism that is too often forgotten by the proponents of new materialism. For to be here on the canal, severed from the present, is to find oneself, necessarily, transported between past and future, between, that is, the ghost and the phantom. The ghosts are everywhere: absent reservoirs, dammed-up rivers, broken bodies, dead things, pollution, industrialism, slavery, the machine, the clock, alienation, work, schedules, disenchantment, insane metabolisms, Empire. And yet so too are the phantoms: of rising sea levels, ice melts, global warming, mass extinction events, acidification, vast people movements, water wars, the heat and horror of the Anthropocene or Capitolocene. In *THEN/NOW* the past and future are here, now, together in some blurred time ecology. For me, the work supplies the very thing that new materialism overlooks: the preponderance of the human, and the return of history. In doing so, it discloses the paradox in new materialism: for if all matter is equally distributed and the human just an actant like any other, then how to account for the historical and barbaric role that capital plays in the production of the world? Is this simply some ruse of nature itself, the dialectic of evolution? Too often, it seems to me that new materialism lets capitalism off the hook, and tends to see it as a veritable force of nature, something that capitalist ideology was always concerned, surreptitiously, to become as a means of hiding its own historicity, its attempt to appear inevitable.

June in Glasgow was unseasonably hot. The water in the canal was strangely transparent, and dead fish – bream, carp, pike – floated to the surface, their bellies swollen and ready to pop. Green algae covered the canal. It stunk. When they dug it out and left it on the side of the canal to dry, it looked like solidified petroleum.

JULY

High summer but the rain and cloud have returned. There is so much light. Business as usual in Glasgow. I think of the extraordinary images of the city captured by the photographer Raymond Depardon in the 1980s in a photo-shoot for the *Sunday Times*, and then pulled out of circulation because his pictures, in their stylised realism, their unsentimental density, conflicted too much with the glitzy image of the city promoted by the City Council as it was gearing up for the City of Culture extravaganza in 1990. Depardon captures the light, magnificently. He is so attuned to it, it is almost as if it blinded him, imprinting itself on his retina, a white eclipse. The first thing that he experienced. I have hopefully used the word 'experience' with care and precision here. For we do not see the light. Light is a medium that allows us to see other objects. To photograph the light, then, as Depardon does, is precisely then not to see it, but rather to allow oneself to be affected by it, to remain open to its impress. One then is not so much capturing light, as allowing oneself to be captured by it, and to translate that capture into a series of images of moods, psychologies

and emotions. Here the doubleness of language reinserts itself, for the word 'mood' relates to atmosphere, which, in scientific discourse, refers to the layer of air that surrounds the earth, and which is the medium where weather takes place. To capture light, then, is to be attuned to something decidedly human and yet to be caught up in a series of impersonal, cosmic flows.

On the canal everything is alive, too much, in excess, verdant. I wonder about what differentiates walking with a dog from walking with people. Of course, there are numerous stops to pick up shit, and to separate fighting dogs, but what stands out for me are the ways in which I am constantly moving between earth and sky, looking down, looking up, following Mali's movements in the undergrowth, and then watching her run towards the horizon. Might this movement, this inhabitation of the interstice, allow for a different thinking of time, one in which the present is severed from itself, and past and future flow into each other? Time here percolates and bubbles, it fizzes and schizzes; it does not flow in some arrow-like movement, the sequential, measured temporality of capitalist modernity.

AUGUST

A change in the light around mid-month – a new softness. The evenings shortening. summer on its way out. The nomenclature of the seasons is too crude. We need other words for grasping the subtle shifts in the weather, for calibrating its moods and changes. Raspberries and apples on the canal. Some leaves changing colour, already. Foxgloves, magenta, lilac, and silver birch trees weaving in the wind. On the canal, there is always rain in the air even when it is not physically there. Moisture in the atmosphere. You can see it dimpling the water. I notice how few times I have seen the weather come in from the east. Here in Glasgow, everything is pointing towards the west, towards the Atlantic, to the Americas, hurricanes, the Gulf Stream, great gyres in the ocean. To love the weather is to give in to multiplicity, to realise that everywhere is always elsewhere, to give up on borders. In the extent to which *THEN/NOW* is a mediation on time, it is also a mediation on space, a HERE/THERE. The same caesura, the forward slash, that diacritically simultaneously connects and disconnects disparate, even opposed times and spaces. I am reminded of

how when we talk about theatre, we often describe the work as a 'piece'. An accurate word for an art form that can never be whole and that always changes its form in its necessary commitment to time. The small iron ingots that document, in list form, a performance event that was part of *THEN/NOW* in July 2015, have rusted and changed. Theatre as the medium closest to weather, a vehicle that transports, an apparatus that is here and elsewhere, simultaneously.

SEPTEMBER

In his important book *Conversation Pieces: Community and Communication in Modern Art* (2004), Grant Kester argues for a new methodology for understanding the objectives of certain kinds of community art that place the emphasis on process rather than product.[108] This entails, Kester claims, a new focus on longitudinal enquiry, spending time with the work, seeing how it was made, and the changes it affects as it unfolds over time.

A different but related argument for duration is made by the art critic T.J. Clark. In *The Sight of Death, An Experiment in Art Writing* Clark explains how he arrived on a fellowship at the Getty Institute in Los Angeles not quite knowing what he would do.[109] He soon found himself, however, magnetically attracted to two paintings by Poussin, *Landscape with a Man Killed by a Snake* and *Landscape with a Calm*, which he proceeded to visit on a daily basis for several months in the year 2000.

While I would not put myself in the same august company as Kester and Clark, my own, accidental engagement with *THEN/NOW* is of a similar order. I was interested in tracing the work's shifting shape, in tracking its transience and mapping the ways in which sculpture becomes theatrical, that is to say, temporal, always moving, committed to change, perhaps. It quickly became apparent that the work was as much about the weather and me, as it was about itself. *THEN/NOW* is a medium, host and catalyst: it communicated information, allowed me to engage with the environment, and produced a number of embodied but virtual thoughts. I have tried to weave this assemblage of experience through this writing.

OCTOBER

Somewhere between the electricity pylon at Rockvilla and the *THEN/NOW* engraving near Applecross Street, I have the following thought: how long does it take for a place to walk itself into you? Readers conversant with the work of the Sheffield-based theatre company, Forced Entertainment will recognise the shape of this question, but they will also sense a difference. Where Forced Entertainment place all the emphasis on the human agent – 'how long', they ask, 'before *you* can write about a place' – I'd like to give more attention to the agency of the place itself, to the way that walking the same path, again and again, weathers you, breaking down your defences to the point where the place leads its own autonomous life within your cells, psyche and bones. Maybe this is why we feel so homesick, so wrenched, when we depart a place? Not so much because we, the human beings, have left an environment, but because the place that you carry within you, in the landscape, maybe, of your soul, has been transported elsewhere, severed from itself, like an island adrift in the sea. What a strange thought to think that the soul is geographical, simply a place

that has migrated from the outside to the inside of a human being, and which is refracted with emotion, memory and imagination.

My friend 'M' is a refugee from Afghanistan. He walks the canal every day. I have never talked to him about *THEN/NOW*. He walks to alleviate the anxiety and depression that threaten to engulf when he remains trapped within his home, watching television and having no one to talk to.

15 October. For the past two months, they have been a building a new cycle path by the Applecross Street Bridge. The work is almost finished now, all that is required is to lay some new turf around four of the *THEN/NOW* stones. The stones themselves look extraordinary as they sit in a field of brown mud. Like in a Zen Garden, they are objects that have retreated, mysteriously and massively, into their immanence, and yet, at the same time, things that allow the world around them to come into view and to swirl vertiginously in the air. The meeting of opposite then: stones that radiate a haze of atoms, that have become incorporeal.

29 October. When I started to notice *THEN/NOW* on the canal ten long months ago in January 2016, I was suffering, for the first time in my life, from Seasonal Affective Disorder (SAD): I was undone, de-created by the sky, abandoned by light. Today is the last Saturday in the month – the day when the clocks go back. The whole day has been like a premonition of winter, a smear on the landscape, thin drizzle, a sky so low and dark that it's like walking in some endless but anonymous night. Even the high-rise blocks in the city melt in the gloom. It hurts my eyes and makes my bones shiver. I know what's in store: the temptation is to self-medicate.

ENDNOTES

1 Bruno Latour, trans. Catherine Porter (1993) *We Have Never Been Modern*, Cambridge MA: Harvard University Press, p. 75.
2 Latour (1993) *We Have Never Been Modern*, p. 10.
3 Quote from the commissioning brief issued by Scottish Canals, Scottish Waterways Trust and Glasgow Sculpture Studios in spring 2014.
4 The commission was part of Scottish Canals' heritage interpretation project: 'Unlocking the Story of Glasgow's Canal' https://www.scottishcanals.co.uk/activities/trails/unlocking-glasgow-canal Accessed 7 August 2020.
5 David F. Wilson, the sculptor who executed the stone artworks, and an expert on Scotland's quarries, believed that the granite was quarried near Creetown, Dumfries and Galloway. See also http://dalbeattie.com/scotland-creetown/quarries/index.html Accessed 6 August 2020.
6 See for example: Patricia C. Phillips (1989) 'Temporality and Public Art', *Art Journal* 48.4, pp. 331-335; W.J.T. Mitchell, ed.(1992) *Art and the Public Sphere*, Chicago and London: University of Chicago Press; Claire Doherty and Paul O'Neil, eds. (2011) *Locating the Producers: Durational Approaches to Public Art*, Amsterdam: Antennae Valiz; Claire Doherty, ed. (2015) *Out of Time, Out of Place: Public Art (Now)*, London: Art Books; Cameron Cartiere and Martin Zebracki (2015) *The Everyday Practice of Public Art: Art, Space and Social Inclusion*, Abingdon and New York: Routledge.
7 'Plonk' and 'plop' art are pejorative terms for sculptural works, usually large in scale, which are deposited, or 'plonked', in a public location with which they have no connection. They are also often characterised by their unpopularity with local residents. See https://www.theguardian.com/artanddesign/2017/sep/11/rachel-whiteread-turner-prize-winner-criticises-plop-art Accessed 28 July 2020.
8 Suzanne Lacy, ed. (1994) *Mapping the Terrain: New Genre Public Art*, Seattle WA: Bay Press.
9 https://www.situations.org.uk/about/ Accessed 27 July 2020. Doherty and O'Neil (2011) *Locating the Producers*; Doherty, (2015) *Out of Time, Out of Place*.
10 Claire Bishop (2012) *Artificial Hells: Participatory Arts and the Politics of Spectatorship*, London and New York: Verso; Shannon Jackson (2011) *Social Works: Performing Art, Supporting Publics*, Abingdon and New York: Routledge.
11 David Beech, 'The Ideology of Duration in the Dematerialised Monument: Art, Sites, Publics and Time', in Doherty and O'Neil (2011) *Locating the Producers*, pp. 313- 325.
12 Beech (2011) 'The Ideology of Duration in the Dematerialised Monument', p. 325.
13 Rebecca Schneider (2018) 'That the Past May Yet Have Another Hand: Gesture in the Times of Hands Up', *Theatre Journal* 70, p. 299.
14 Schneider (2018) 'That the Past May Yet Have Another Hand', p. 286.
15 Latour (1993) *We Have Never Been Modern*.
16 Rodney Harrison (2013) *Heritage: Critical Approaches*, Abingdon and New York: Routledge, p. 9.
17 Laurajane Smith (2006) *Uses of Heritage*, Abingdon and New York: Routledge; Michael Shanks (2016) *The Archaeological Imagination*, Abingdon and New York: Routledge.

18 The heritage section of Scottish Canals' website refers only to 'city merchants' raising money for a Glasgow branch of the Forth and Clyde Canal in 1777 https://www.scottishcanals.co.uk/heritage/ Accessed 7 August 2020.
19 https://blog.nls.uk/the-forth-clyde-canal-reservoirs-wrangles-and-rorts-by-professor-paul-bishop/ Accessed 27 July 2020. https://www.gla.ac.uk/research/az/globalhistory/news/headline_617082_en.html Accessed 27 July 2020.
20 Jean Lindsay (1968) *The Canals of Scotland*, Newton Abbott: David and Charles, p. 16; T. J. Dowds (2003) *The Forth and Clyde Canal: A History*, East Linton: Tuckwell Press, p. 21. By the time of the completion of the canal in 1790 the tobacco trade had declined, due to the outbreak of civil war in America. However, the canal was funded to a significant extent by wealthy Glasgow merchants: the so-called 'tobacco lords'.
21 Harrison (2013) *Heritage*, p. 4.
22 Lucy R Lippard (2014) *Undermining: A Wild Ride Through Land Use, Politics and Art in the Changing West*, New York and London: The New Press, pp. 88 and 89.
23 Lippard (2014) *Undermining*, p. 83.
24 The nineteenth-century statue of Edward Colston, a Bristol merchant whose wealth was derived from the transatlantic slave trade, and which was removed by Black Lives Matters protesters in June 2020, is an extreme example of controversial figurative public art. Colston's statue was replaced a few weeks later, and without official authorisation, by artist Marc Quinn's statue of black protestor Jen Reid. Quinn's statue was removed within twenty-four hours of its erection. https://www.artnews.com/art-news/news/marc-quinn-edward-colston-monument-replacement-12026943 56/ Accessed 1 August 2020. Richard Serra's *Tilted Arc*, Federal Plaza, Manhattan, 1981-1989, is one of the most-cited examples of non-figurative sculptural work whose public unpopularity led to its removal. https://www.tate.org.uk/art/artists/richard-serra-1923/lost-art-richard-serra Accessed 1 August 2020. Examples of land art projects on a vast scale, which have attracted criticism for their exclusivity and 'arrogant vandalism' include James Turrell's unfinished *Roden Crater*, Arizona, http://rodencrater.com/ Accessed 1 August 2020 and Michael Heitzer's *Double Negative*, 1969-70, Nevada. https://www.theguardian.com/artanddesign/2004/dec/22/art Accessed 1 August 2020.
25 Doherty (2015) *Out of Time, Out of Place*, p. 11.
26 Hans Haacke's 'manifesto' quoted in Jack Burnham (1967) *Hans Haacke, Wind and Water Sculpture*, Evanston: Northwestern University Press, p. 8.
27 Doreen Massey (2005) *For Space*, London, Thousand Oaks and New Delhi: SAGE, p. 140.
28 Massey (2005) *For Space*, p. 130.
29 Scottish Waterways Trust was a charitable trust affiliated with Scottish Canals, which focused on community, arts, heritage, wellbeing and educational activities. It ceased trading in 2019 https://scottishwaterwaystrust.org.uk/ Accessed 6 August 2020.
30 The call for expressions of interest was circulated via arts networks and listings in spring 2014.

31 Scottish Canals became the name of the public body responsible for Scotland's canals in 2012. The organisation had previously operated under the auspices of British Waterways. British Waterways in England became a charitable organisation, the Canal and River Trust, in 2012. https://www.scottishcanals.co.uk/corporate/about-us/our-structure-and-governance/ Accessed 6 August 2020.
32 The Millennium Link was a £84.5 million project, taking place between 1999 and 2002, to restore the Forth and Clyde and Union Canals and reinstate a navigable waterway between the east and west coasts of central Scotland, following its closure in 1963. http://www.millenniumlink.org.uk/ Accessed 6 August 2020.
33 *The Kelpies* are large steel equine sculptures by artist Andy Scott. They were commissioned by Scottish Canals as an iconic landmark in parkland adjacent to the Falkirk Wheel, which was created as part of the Millennium Link. https://www.scottishcanals.co.uk/destinations/the-kelpies/ Accessed 6 August 2020.
34 Fluxus are a loose grouping of artists most active in the 1960s and 1970s. https://www.tate.org.uk/art/art-terms/f/fluxus Accessed 6 August 2020.
35 'Canal man' is the title David (Davie) McRoberts and Tam Reston prefer for their roles with Scottish Canals. In an informal conversation in summer 2014, they proposed that 'canal man' and 'canal woman' should be used in preference to their official titles as 'canal operatives'.
36 'Puddle' or 'puddled' clay is the material used historically to line the base of canals and reservoirs. The clay was trampled, or 'puddled', by cattle or humans to make it more impervious to water.
37 See descriptions of artworks on p. 2-7.
38 'Scheduled monument' is the status given to buildings, locations, and monuments deemed to be of national value and worthy of protection by Historic Environment Scotland. https://www.historicenvironment.scot/advice-and-support/listing-scheduling-and-designations/scheduled-monuments/ Accessed 6 August 2020.
39 https://www.georgebeasleysculpture.info/ Accessed 28 July 2020.
40 https://canmore.org.uk/site/187090/glasgow-victoria-foundry Accessed 6 August 2020.
41 Resin-sand is a mixture of sand and resin used in mould making as it can be compressed and sets into a hard material.
42 http://www.ssw.org.uk/ Accessed 6 August 2020.
43 https://www.scottishcanals.co.uk/events/unlock-the-story-of-victoria-foundry/ Accessed 7 August 2020.
44 Tobacco merchants lobbied for the canal to be routed through Glasgow, and funded its construction. The canal would provide passage for their goods to the east coast and Europe. Jean Lindsay (1968) *The Canals of Scotland*, Newton Abbott: David and Charles, p. 16. T. J. Dowds (2003) *The Forth and Clyde Canal: A History*, East Linton: Tuckwell Press, p. 21.
45 Usain Bolt held the world record for the one-hundred and two-hundred metre sprint in November 2016.
46 https://canmore.org.uk/site/187090/glasgow-victoria-foundry Accessed 7 August 2020.
47 https://www.georgebeasleysculpture.info/ Accessed 7 August 2020.

48 Thames Capsule is based on a late-nineteenth-century font from Doves Press, which was lost for nearly one hundred years as result of a feud between two of the firm's partners. One of the partners, Thomas James Cobden-Sanderson, threw the unique metal type for the font into the River Thames, London. The metal type was recovered from the river in 2014 and used as the basis for the new digital typeface, its Arts and Crafts styling adjusted for digital print and on-screen viewing. https://www.itsnicethat.com/articles/thames-capsule Accessed 7 August 2020.

49 Becky was commissioned to make a film about iron-working in Kirkintilloch, Dunbartonshire, Scotland. The film, *Shoulder to Shoulder*, includes interviews with workers from iron foundries in the area, such as the Lion Foundry. The only foundry still operating in the Kirkintilloch area is Archibald Young, which features in the documentary. It is primarily a copper alloy and aluminium foundry but also produces cast-iron products.

50 Scottish Canals and Scottish Waterways Trust organised a public archaeological dig on the site of Victoria Foundry on the day after the iron founding event. The essay on pp. 263 - 279. of this publication by Chris O'Connell, Senior Heritage Adviser for Scottish Canals, describes this event in more detail. https://www.scottishcanals.co.uk/events/unlock-the-story-of-victoria-foundry/ Accessed 7 August 2020.

51 The audience member was John Main, whose sketch and reflection on the iron pour is on pp. 185 - 190 of this publication.

52 Some nails, cut and hammered from sheets of iron, were found during the archaeological dig on the site of Victoria Foundry. It is likely that these were typical of the kinds of small items made there.

53 http://dfwilson.co.uk Accessed 7 August 2020.

54 From Robert Burn's poem, *To a Mouse*. https://www.poetryfoundation.org/poems/43816/to-a-mouse-56d222ab36e33 Accessed 18 August 2020.

55 David was told this by canal operative supervisor, David McRoberts.

56 'Bathymetry' is the measurement and mapping of the depths of bodies of water https://www.nationalgeographic.org/encyclopedia/bathymetry/ Accessed 2 August 2020.

57 The Forth and Clyde Canal is classed as a 'scheduled monument' by Historic Environment Scotland. This means that, within defined boundaries, any changes to the fabric of the canal need approval from Historic Environment Scotland. See https://www.historicenvironment.scot/advice-and-support/listing-scheduling-and-designations/scheduled-monuments/ Accessed 7 August 2020.

58 Hydrographic studies measure and map the topography of the depths of bodies of water. Bathymetric data are the records of such studies. https://www.nationalgeographic.org/encyclopedia/bathymetry/ Accessed 2 August 2020.

59 Dowds (2003) *The Forth and Clyde Canal*.

60 Dowds (2003) *The Forth and Clyde Canal*, p. 33.

61 Lindsay (1968) *The Canals of Scotland*, pp. 24-25.

62 Robert Rennie (1796) 'Kilsyth Parish, County of Stirling', *Statistical Account* [colloquially called the *Old Statistical Account*], XVIII, p. 225.

63 Chalmers (1997) *Old Kilsyth*.

64 Suggested in 2016 by Mr John Gordon (local historian), Kilsyth.

65 Paul Bishop (2020) 'Bothlin Burn', *Scottish Local History* 107, pp. 39-42.

66 Robert Mackell and James Watt (1767) *An Account of the Navigable Canal Proposed to be Cut from the River Clyde to the River Carron*, London, p. 4.

67 Pictures of the survey and an explanation of its methodology are available at http://then-now-project.tumblr.com/post/126525797183/the-five-reservoirs-that-currently-supply-water Accessed 4 August 2020.

68 James Ballatine and Patrick Shaw (1834) *Cases Decided in the Court of Session from May 1821 to July 1822, Edinburgh*: Thomas Clark Law Booksellers. https://books.google.co.uk/books?id=k_BCAQAAMAAJ&pg=PA72&lpg=PA72&dq=Proprietors+of+Kelvin+Mills+kilmannan&source=bl&ots=d3DRvli7En&sig=ACfU3U30rSFLGVS2BPCFFLnMJOqueAVu7w&hl=en&sa=X&ved=2ahUKEwiX-goiN6uLnAhVBSxUIHc2hCioQ6AEwAXoECAgQAQ#v=onepage&q=Proprietors%20of%20Kelvin%20Mills%20kilmannan&f=false Accessed 4 August 2020.

69 Lindsay (1968) *The Canals of Scotland*, Dowds (2003) *The Forth and Clyde Canal*, ch. 3.

70 Scots Magazine 1767, 29, has many pages of letters for and against the Edinburgh and Glasgow proposals; likewise, *The Glasgow Journal*, 28 March 1767 reports on the debate.

71 http://thewhiskybond.co.uk/ Accessed 25 October 2016.

72 http://thewhiskybond.co.uk/ Accessed 25 October 2016.

73 Foundry pattern-makers create three-dimensional models which are used to make the moulds in which iron, and other metal, is cast.

74 'Ladle' is the name John gives to the vessel in which molten iron is collected from the furnace. This is referred to as a 'crucible' in the interview with the iron founding team on pp. 185 - 190 of this book.

75 The 'plug' is referred to as a 'bott' in the interview with the iron founding team on pp. 87 - 115 of this book.

76 All subheadings are from the same paragraph in the novel *Riddley Walker*. Russell Hoban (1980) *Riddley Walker*, London: Jonathan Cape.

77 The stream runs from its source in the parish of Dunkirk, north of Canterbury, 13.4 kilometres, to the Wantsum Channel and the Stour. It travels north east, running parallel to the Great Stour river, with the Roman road (A28) running in between. The stream passes through the Blean Woods National Nature Reserve and the villages of Blean and Tyler Hill. I lived in Tyler Hill and went to school in Blean.

78 From Wikipedia: 'Pillboxes are concrete dug-in guard posts, normally equipped with loopholes through which to fire weapons. The originally jocular name arose from their perceived similarity to the cylindrical and hexagonal boxes in which medical pills were once sold. They are, in effect, a trench firing step hardened to protect against small-arms fire and grenades.' I have no idea why there was one in the valley. It was hexagonal, wedged into the hillside and we used to light fires and burn various plastic dolls inside. Accessed 1 December 2016.

79 http://www.bbc.co.uk/news/uk-england-22528052 That's my bridge in the film by the way. And that's my stream. Accessed 1 December 2016.

80 Edith/Edie completed an art school application portfolio preparation course at Tramway contemporary arts centre in Glasgow from 2019-20.

81 'Scheduled monument' is the status given to buildings, locations, and monuments deemed to be of national value and worthy of protection by Historic Environment Scotland. https://www.historicenvironment.scot/advice-and-support/listing-scheduling-and-designations/scheduled-monuments/ Accessed 6 August 2020.

82 A free, public symposium at Glasgow Sculpture Studios on 9 December 2016 that took the public art project, *THEN/NOW*, as a stimulus to debate questions about the relationship between public art, place-making, heritage and ecology. I was a speaker at the symposium. See http://www.then-now.org/symposium for details. Accessed 10 August 2020.

83 As a non-academic, I make no claim to rigour or consistency in the basis for my positions but you could check out Adam Curtis' video *HyperNormalisation* (2016), and Lesley Riddoch (2013) *Blossom: What Scotland Needs to Flourish*, Edinburgh: Luath Press for an accessible global and Scottish context.

84 The Gorbals is an area of Glasgow on the south bank of the River Clyde. It grew rapidly as a residential district in the first half of the nineteenth century, accommodating a large part of the workforce for the swift and extensive industrial expansion that Glasgow was then undergoing. Much of the housing was high-density tenement buildings of relatively poor quality and without adequate infrastructure for maintenance, becoming identified as 'slum dwellings'. The Gorbals has an ongoing history of redevelopment, with the 'slums' cleared in the 1960s to be replaced by high-rise housing blocks, themselves demolished in the 1990s–2010s and replaced by the 'New Gorbals' development.

85 Examples of confirming projects would be projects that are commissioned from within inaccessible rooms (like council chambers or corporate boardrooms) and are then created by high-tech processes in faraway workshops to arrive with ribbon-cutting ceremony and anti-vandal maintenance programmes. This is the last time I will refer to this category of project in this essay.

86 For me, one of the most 'useful' things about an artist is their 'uselessness', in that no one expects an artist to do anything conventionally useful. This means that they are not a threat to anyone else's territory of expertise and they are free to build unlikely and beautiful alliances of trust across the most unpromising situations.

87 Minty Donald and Nick Millar have built and lived on barges on the Leeds and Liverpool Canal, on the Forth and Clyde Canal and on the River Clyde. Much of their practice, as artists, focuses on relationships between people and rivers or other watercourses. While the particular life experience of two of the *THEN/NOW* artists was exceptionally suited to this project, this is not to say that the approach cannot work when artists do not have similar specific knowledge of a project's context. I believe that it is a part of the skill-base of artists practicing in public to be able to create a 'trust economy' around a public art project, and then it is their responsibility to use that opportunity.

88 Since the *THEN/NOW* artworks were installed, two of which (the Townhead and Birkenburn Reservoir sculptures) are located inside the precinct of Scottish Canals' Head Office, Scottish Canals have removed the perimeter fence, allowing public access to the artworks. While the artists do not claim that the *THEN/NOW* project was directly responsible for this move to greater accessibility, they hope that their decision to locate the artworks within the precinct, and the project in general, contributed to a climate where such a change might take place.

89 This supposition is based on a conversation between Scottish Canals' Operatives Supervisor, David McRoberts, and sculptor, David F. Wilson, who carved the miniature reservoirs. See also http://dalbeattie.com/scotland-creetown/quarries/index.html Accessed 6 August 2020.

90 An 'erratic', or 'glacial erratic' is a rock or boulder that has been transported by glacial ice from its originary location and deposited on terrain of a different lithic type.

91 Olivia Lassière was responsible for developing Scottish Canals' Environmental Strategy and for overseeing its delivery. https://www.scottishcanals.co.uk/corporate/about-us/your-environment-and-heritage/environment-strategy/ Accessed 6 August 2020.

92 'Pond-dipping' is an activity where a small net is used to collect specimens from a body of water for study. Scottish Canals often use this method in educational workshops with schools or other groups.

93 Olivia Lassière, quoted from transcript of recorded conversation, 24 October 2016.

94 'Bathymetry' is the measurement and mapping of the depths of bodies of water https://www.nationalgeographic.org/encyclopedia/bathymetry/ Accessed 2 August 2020.

95 Timothy Morton (2018) *Being Ecological*, Cambridge MA: MIT Press, p. 169.

96 The commission brief for the public artworks, written by Scottish Canals and Scottish Waterways Trust, required artists to consider and minimise the on-going maintenance of the artworks they proposed.

97 britishwaterways.co.uk Accessed 27 July 2020.

98 https://www.historicenvironment.scot/advice-and-support/listing-scheduling-and-designations/scheduled-monuments/ Accessed 27 July 2020.

99 See the introduction to this publication.

100 The brief for the public art commission issued by Scottish Canals, Scottish Waterways Trust and Glasgow Sculpture Studios, 2014.

101 Susan Stewart (1993) *On Longing: Narratives of the Miniature, the Gigantic, the Souvenir, the Collection*, Durham NC and London: Duke University Press, pp. 70 - 71.

102 Donna Haraway (2016) *Staying With the Trouble: Making Kin in the Chthulucene*, Durham NC and London: Duke University Press, pp. 104 - 116.

103 Scottish Waterways Trust was a charitable trust affiliated with Scottish Canals, which focused on community, arts, heritage, wellbeing and educational activities. It ceased trading in 2019 https://scottishwaterwaystrust.org.uk/ Accessed 6 August 2020.

104 https://www.scottishcanals.co.uk/events/unlock-the-story-of-victoria-foundry/ Accessed 7 August 2020.
105 Jane Bennett (2001) *The Enchantment of Modern Life. Attachments, Crossings and Ethics*, New Jersey: Princeton University Press, p. 99.
106 Gaston Bachelard, trans. E. Farrell and C. Farrell (2011) *Air and Dreams: An Essay on the Imagination of Movement*, Dallas: The Dallas Institute of Humanities and Culture, p. 7.
107 Michel Serres, trans. E. MacArthur and W. Paulson (2008) *The Natural Contract*, Michigan: Ann Arbor, University of Michigan, p. 27.
108 Grant Kester (2004) *Conversation Pieces: Community and Communication in Modern Art*, Berkeley: University of California Press.
109 T.J. Clark (2006) *The Sight of Death, An Experiment in Art Writing*, New Haven: Yale University Press.

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